STATEMENT OF REASONS
WATER QUALITY STANDARDS REVISIONS
APRIL 20, 2000 PUBLIC HEARING

On March 14, 2000 the Commissioner of the Department of Environmental Protection (Department) published a notice of intent to revise Connecticut Water Quality Standards in the Connecticut Law Journal (Exhibit 10). Legal Notices were also published twice in Connecticut's five largest newspapers (Exhibit 3). All Connecticut municipalities were sent, via certified mail (Exhibits 11 and 12), the same notice, an information package, and a copy of the Department's proposed revisions of the Water Quality Standards. Pursuant to such notices, a public hearing was held on April 20, 2000 at the Department in the Russell Hearing Room.

The Public Hearing commenced at 9:35 a.m. Mr. Fred Banach (Hearing Officer) reviewed the hearing format and the statutory decision making process (Section 22a-426, Connecticut General Statutes). Mr. Banach briefly summarized the major revisions proposed by the Department and noted that the hearing record would remain open to receive written testimony until May 31, 2000.

Speakers and a summary of their oral testimony are presented below:

Ms. Jeanne Voorhees, USEPA New England, Connecticut Unit Team: Ms. Voorhees read from a prepared statement (Exhibit 4) and noted that EPA supported many of the proposed changes and will provide detailed comments by May 31, 2000.

Mr. David Galt, Office of the Soundkeeper: Mr. Galt read from a prepared statement (Exhibit 8) signed by Mr. Terry Backer, Soundkeeper. The statement included detailed comments concerning the proposed marine dissolved oxygen criteria revisions. The Soundkeeper recommended higher dissolved oxygen criteria be adopted than proposed. He also expressed concern regarding the water quality monitoring interval necessary to verify attainment of the proposed dissolved oxygen criteria.

Ms. Carolyn Hughes, Connecticut Chapter of the National Audubon Society: Ms. Hughes supported the proposed marine dissolved oxygen criteria revisions in that the revisions were consistent with field and laboratory research of both the Department and the Environmental Protection Agency (EPA) and that the proposed criteria would fully protect marine life.

List of Exhibits

1. Authorization to hold the Public Hearing.
2. Proposed Revisions to the Surface Water Quality Standards (April, 2000)
3. Copies of the Legal Notices sent to The Connecticut Law Journal, Connecticut Post, Hartford Courant, New Haven Register, Norwich Bulletin, and Waterbury American.
4. EPA New England letter dated April 10, 2000. (EPA)
5. Letter dated April 13, 2000 from Robert Rostkowski, City of Bristol. (Bristol)
6. Memo dated April 11, 2000 from Robert Gilmore, Department of Environmental Protection, Inland Water Resources Division (IWRD)
7. Memo dated April 7, 2000 from Lee Dunbar, Department of Environmental Protection, Planning & Standards Division (DBAR)

8. Comments dated April 20, 2000 from Terry Backer, Soundkeeper. (SK)
9. Letter dated April 20, 2000 from Gary Ginsberg, PhD, Department of Public Health, Environmental Epidemiology & Occupational Health. (DPH)
10. Copy of Legal Notice published in the Connecticut Law Journal, March 14, 2000.
11. Information package sent certified mail by the Department to all Connecticut municipalities.
12. Certified Mail return receipts from municipalities
13. Fact Sheet concerning the Proposed Surface Water Quality Standards revisions.
14. Letter dated May 31, 2000 from Robert Taylor, Loureiro Engineering Associates (RBT)
15. Letter dated May 31, 2000 from Robert Dusza Jr., Connecticut Water Pollution Abatement Association, NPDES Subcommittee (CWPAA)
16. Letter dated May 26, 2000 from Lynne Hamjian, USEPA, Connecticut State Program Unit, requesting hearing record extension to receive written comments.
17. Letter dated May 23, 2000 from Howard Golub, Interstate Sanitation Commission, requesting that the hearing record remain open to receive written comments.
18. Memo dated May 26, 2000 from the Hearing Officer noting the hearing record would be kept open to receive written comments until June 16, 2000.
19. Letter dated June 15, 2000 from Howard Golub, Interstate Sanitation Commission (ISC).
20. Letter dated June 16, 2000 from Linda Murphy, USEPA Office of Ecosystem Protection with three enclosures providing additional comments from the EPA New England (EPA); the US Fish and Wildlife Service, New England Field Office (FWS); and the National Oceanic and Atmospheric Administration, National Marine Fisheries, Northeast Region (NMF).

WQS Statement of Reasons

Comments on the proposed Water Quality Standards (WQS) are organized by major section and presented below. Many comments in this report were paraphrased for brevity and a number of similar comments combined. Each comment is followed by an acronym that identifies the origin of the comment. The **List of Exhibits** associates the acronyms with the commenting agency or individual. Comments are followed by the Department's response, including when appropriate, changes made as a result of the comment. All written comments, are part of the record of this Water Quality Standards revision process and are available for review.

Comments on matters relating to the Department's proposed marine dissolved oxygen criteria revisions have been separately addressed (see "Statement of Reasons, Connecticut Water Quality Standards, Revisions Concerning Coastal Dissolved Oxygen Criteria" and Statement of Reasons Addendum, both approved by the Commissioner on February 21, 2001).

Preface

1. Comment: The summary of policies includes as the first bullet that Connecticut DEP shall protect surface and ground waters of high quality from

degradation. This implies that a water resource must be a high quality water body in order to be protected from degradation, and that other water bodies of less quality do not qualify for protection from additional degradation and suggest "high quality" be deleted from this statement. (EPA)

Response: Both the Preface and Introduction are there to inform the reader of why the Connecticut Water Quality Standards are necessary and generally how they are used. The phrase "of high quality" will be deleted to clarify the intent of the State's policy.

Introduction

2. Comment: In order to be consistent with section 101(a) of the federal Clean Water Act, it is recommended that the following statement of purpose be included in the introduction: "To restore and maintain the chemical, physical, and biological integrity of Connecticut's surface waters, and wherever attainable, to provide for the protection and propagation of fish, shellfish and wildlife and provide for recreation in and on the water." (EPA)

Response: The suggested language will be inserted into the first paragraph.

3. Comment: The Introduction should be amended to make minor corrections such as noting the relocation of the Definitions section to the Appendices and revising the name of the agency now called the Department of Public Health. (RBT)

Response: Minor revisions of this type to correct outdated agency names and to match other formatting or organizational changes will be made throughout the Water Quality Standards.

4. Comment: Comprehensive statewide surface water quality standards were first adopted in 1967 and should be recognized. (RBT)

Response: A reference to the first adoption of Water Quality Standards in Connecticut will be added to the Introduction.

Definitions (Appendix A)

5. Comment: Too many regulatory terms have been specifically defined. Moving the definitions to the body of the standards tends to make the standards read more like a regulatory document rather than "clear and objective public policy statements of a general program to improve the water resources of the state". In keeping with the above statutory purpose, deleting definitions that are not essential to understanding the Water Quality Standards and the incorporation of definitional text within the narrative Surface Water Quality Standards is recommended. (RBT)

Response: Incorporating definitional text within the narrative Standards would be excessively repetitive for terms that are frequently used. The definitions will be listed in Appendix A as this practice is conventional for public documents that are not adopted as state agency regulations. A list of definitions is consistent with the

goal of providing "clear and objective public policy statements" and will be retained.

6. Comment: The Water Quality Standards contain a substantial number of defined terms. Despite these numbers, a few terms that appear frequently in other State's water quality standards are missing. These include terms such as pollutant, pollution, reference site/reference condition, aquatic life, mixing zone and biological integrity. It would be useful if these were included as defined terms similar to the standards of other New England States. (FWS)

Response: While understandably desirable at the federal agency level, the recommendation that all New England States' Water Quality Standards define the same terms in the same way is not possible due to differences in state law, program regulations and water management programs. Terms that are not used in Connecticut's Water Quality Standards such as "mixing zone" and "reference site/reference condition" will not be defined since they have no meaning within the context of these Standards. The common meanings of certain other terms such as "pollution" and "pollutant" are sufficiently precise for interpretation of the Standards and specific definitions are provided in State statutes for regulatory purposes. The term "biological integrity", however, has been recently added to Standard 1 and will be defined as indicated in the response to Comment 12 below.

7. Comment: ***Acute toxicity*** is more commonly defined in terms of the exposure period required to produce an effect (commonly mortality or debilitation), than in terms of the concentration of a toxic substance required to produce the effect. Therefore, the definition should be revised as follows: "Adverse effect such as mortality or debilitation caused by a brief exposure to a substance." (EPA)

Response: The recommended change will be made, except the term "toxic" (before "substance") will remain in the definition so that the definition reads:

"Acute toxicity

means adverse effect such as mortality or debilitation caused by a brief exposure to a toxic substance."

8. Comment: The definition of ***Anti-degradation Policy*** is not quite accurate. It should be amended to track EPA's language more closely. For example, anti-degradation does not relate to lowering of a classification, but rather to lowering water quality. Therefore, the definition should be revised as follows: "A statement of practice required by federal law which protects existing uses and prohibits a state from lowering high surface water ~~classifications or standards~~ quality in order to accommodate~~ new or increased discharges or land use practices~~ activities which impact a particular surface water unless a lowering of surface water quality is determined, following intergovernmental coordination and public participation, to be necessary to accommodate important economic or social development in the area where the water is located." (EPA)

Response: The definition will be revised as recommended to read:

"Anti-degredation Policy

means a statement of practice required by federal law which protects existing uses and prohibits a state from lowering high quality surface water quality in order to accommodate activities which impact a particular

surface water unless a lowering of surface water quality is determined, following intergovernmental coordination and public participation, to be necessary to accommodate important economic or social development in the area where the water is located."

9. Comment: The deletion of the reference to organisms or (organic) materials on the bottom of waterbodies in the definition of ***benthic*** is not appropriate. (RBT)

Response: The term "benthic" is used in these Standards as a descriptive term for any activity or material related to the bottom of a surface water body. The definition appearing in the 1997 version of the Standards limited use of the term to describe organisms or organic materials on the bottom of a waterbody. Deletion of the specific reference to organisms or material is appropriate since the intent is to use this term to describe *any* material existing on the bottom of a waterbody. No change will be made.

10. Comment: Why substitute the term "intake" for "uptake" in the definitions of ***bioaccumulation*** and ***bioconcentration***? (RBT)

Response: Staff biologists concur the term "intake" is more limiting than intended. Common scientific usage equates "uptake" with both active (e.g. consumption) and passive (e.g. diffusion) transfer of a substance from the organism's environment to internal tissue. The definition will be revised to substitute the word "uptake" for "intake" as recommended to read:

"Bioaccumulation
means the uptake and retention of substances by an organism from its surrounding medium and/or from food."

11. Comment: The definition of ***bioconcentration*** should be revised as follows: "The intake [uptake] and retention of a substance by an organism from its surrounding medium ~~to levels which exceed the concentration of that substance in the medium~~. (EPA)

Response: The definition of ***bioconcentration*** will be modified as recommended to refer to "uptake" rather than "intake". The phrase "to levels which exceed..." will be deleted since staff biologists concur that ***bioconcentration*** refers to any uptake and retention of a substance by an organism so that the definition reads:

"Bioconcentration
means the uptake and retention of substances by an organisms from its surrounding medium."

12. Comment: The phrase ***biological integrity*** is used in other State Standards and should be used in Connecticut's Water Quality Standards (e.g. Standard 1) and defined consistent with the definition used in "Karr and Dudley, 1981". "Biological integrity means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats of a region." (EPA)

Response: The term ***biological integrity*** will be inserted into Standard 1 (see Comment 35) and defined as:

"Biological integrity
means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats of a region."

13. Comment: ***Chronic toxicity*** is more commonly defined in terms of the exposure period required to produce an effect (e.g. reduced reproduction, reduced growth, or lethality), than in terms of the concentration of a toxic substance required to produce the effect. Therefore, the definition should be revised as follows: "Adverse effect, such as reduced reproductive success or growth or poor survival of sensitive life stages, occurring as a result of exposure to ~~relatively low concentrations of~~ a ~~toxic~~ substance for a period of time related to the life span of an organism and usually longer than that which causes acute toxicity." (EPA)

Response: The definition will be revised as recommended to read:

"Chronic toxicity
means an adverse effect such as reduced reproductive success or growth or poor survival of sensitive life stages occurring as a result of exposure to a toxic substance for a period of time related to the life span of an organism and usually longer that that which causes acute toxicity."

14. Comment: In the definition for ***classification***, delete "in accordance with these standards" from the proposed new language in the first sentence. Make the phrase "alphabetic character" plural. Also suggested are deleting the word "two" and the word "Department's" from the new language proposed in the second sentence. (RBT)

Response: The editing suggestions (i.e. delete "in accordance with these standards", add the letter "s" to make "character" plural, delete the word "two", and delete "Department's") would improve the definition and will be made so that the definition reads:

"Classification
means the designation of the proposed uses of surface and ground waters with alphabetic characters. Where classifications appear as alphabetic characters separated by a diagonal line, the first classification indicates known or presumed existing water quality and the second classification indicates the goal for the subject water.

15. Comment: Why define the terms ***commissioner*** and ***depuration*** in the Water Quality Standards? The definitions are not consistent with the definitions in Section 22a-423 (commissioner) and in the National Shellfish Sanitation Program Manual of Operations.
(RBT)

Response: The definition of Commissioner will be made consistent with the referenced statute by adding the word "designated" before "agent" as follows:

"Commissioner
means the Commissioner of Environmental Protection or his designated agent as set forth in Section 22a-423 of the Connecticut General Statues."

The definition of "depuration" will be deleted since this term no longer appears in the Standards.

16. Comment: The term ***designated use*** is used inconsistently. Designated uses are in some instances referred to as "proposed uses," "potential uses," "goal uses," and "designated use goal." (EPA)

Response: The text will be reviewed and inconsistent uses of these terms will be corrected.

17. Comment: In the definition of ***designated use***, the statement, "*...whether or not they are being attained"* must remain in this definition for consistency with the federal definition of a designated use [40 CFR 131.3(f)]. Similarly, a reference in the definition of ***designated use*** similar to the following italicized statement needs to be included, as follows; "*...in no case shall assimilation or transport of pollutants be considered a designated use."* (EPA)

Response: Consistency with the federal Clean Water Act is a requirement of Section 22a-426 of the Connecticut General Statutes and, therefore, the phrase "whether or not they are being attained" will remain in the definition. Adding the second phrase ("*...in no case shall assimilation or transport of pollutants be considered a designated use")* is not necessary. The assimilation or transport of pollutants is not identified as a designated use in any surface water classification in Connecticut's Standards nor is this phrase included in the federal definition of designated uses found in 40 CFR 131.3(f). Accordingly the definition of "designated use" will appear as:

"Designated Use
means those uses specified in these Water Quality Standards for each surface water (or ground water) classification whether or not they are being attained."

18. Comment: It is useful to the reader to include the statutory definition of the term ***discharge*** similar to the definition of ***sewage***. (EPA, RBT)

Response: The definition of discharge will be revised as follows:

"Discharge
means as set forth in Section 22a-423 of the Connecticut General Statutes.

19. Comment: The language used in the definition of ***dredged material disposal area*** implies that there is and will be only one federally designated dredged material disposal area in Long Island Sound. (RBT)

Response: The definition will be revised to reflect the existence of more than one approved dredged material disposal area as follows:

"Dredged Material Disposal Area
means an area which has been approved by the Commissioner for disposal of dredged material, including but not limited to federally designated dredged material disposal areas in Long Island Sound."

20. Comment: In the definition of ***existing uses*** the significance of the date, "November 28, 1975" should be clarified. (RBT)

Response: This date is established in federal regulation as the baseline from which further deterioration of the nation's waters would be prohibited. The intent of this provision was to insure that requiring that uses that were actually supported on this date would not be lost. The definition will be stated as follows:

"Existing Uses
means those uses actually attained in a water body on or after November 28, 1975, whether or not they are included in water quality standards as defined in Federal Water Quality Standards Regulation (40 CFR Part 131.3)."

21. Comment: The DEP should change the definition of ***fill material*** to read as follows: "Any material deposited or placed which has the effect of raising the level...." This would create an "effects" test rather than a "purpose" test and make the definition more consistent with EPA's definition. (EPA)

Response: The definition will be revised by replacing the phrase "to raise" with "which has the effect of raising":

"Fill material
means any material deposited or placed which has the effect of raising the level of the ground surface, whether such surface is above, at, or below the water table, or to replace surface waters with dry land. This term includes, but is not limited to consolidated material such as concrete and brick and unconsolidated material such as sand, gravel, and stone."

22. Comment: The DEP should make the following changes to the proposed definition of ***high quality waters***: Replace "which exceeds" with "where the water quality is better than necessary to meet", and replace "and which may sustain" with "or which may sustain." (EPA)

Response: The recommended changes would improve the definition and will be made. Accordingly the definition will be modified to read:

"High quality waters
means surface waters where the water quality is better than necessary to meet the criteria established in these Water Quality Standards for the applicable classification or which may sustain a sensitive use designated for a higher classification."

23. Comment: The term ***natural origin*** is used repeatedly in the narrative criteria in Section III. Surface Water Classifications. The definition should be revised as follows,: "The ~~natural~~ ambient ~~background~~ level or condition that would exist absent human influence ~~has been measured~~." (EPA)

Response: The recommend changes to this definition are misleading, possibly leading to unattainable water quality criteria. All Connecticut surface water resources, even the most pristine, are and will continue to be influenced to some degree by humans by myriad direct and indirect sources such as those related to atmospheric deposition. Further, humans are part of the natural environment. It is important to emphasize that human influences on water quality need to be managed to the extent that existing uses are maintained and designated uses are achieved. The use of the terms *natural origin* and *natural causes* in these Water Quality Standards are subject to considerable comments which are also responded to later in this Statement of Reasons. No change will be made.

24. Comments: Several comments were made concerning the definition of ***non-point source***. One comment suggested the definition appearing in the 1997 adopted standards was preferable to the proposed revision. (RBT). Another suggested the definition was too narrow and should be broadened. For example, it would not include pollutant contributions from sediments leaching metals into the water column. (EPA)

Response: The definition of non-point sources will be modified by adapting an EPA definition appearing in Monitoring Guidance for Determining the Effectiveness of Non-point Source Controls (EPA-B-96-004), as follows:

"Non-point source

means any unconfined and diffuse source of pollution such as stormwater or snowmelt runoff, atmospheric deposition, or groundwater not conveyed to a surface water discharge point within a discrete conveyance."

25. Comment: The definition of ***point source*** is too narrow and should be expanded to include coverage as broad as the federal definition at 40 CFR 122.2. (EPA)

Response: The definition will be modified to read:

"Point source

means any source of treated or untreated wastewater that is conveyed to a surface water discharge point within a discrete, readily identifiable conveyance such as a pipe, conduit, or other confined structure."

26. Comment: The need to define ***sanitary survey*** is questioned as is the inclusion of the word "unlawful" in the definition. (RBT)

Response: The term "sanitary survey" is used in Standard 25 and is not widely understood. It is a procedure necessary to determine whether elevated levels of indicator bacteria should be interpreted as evidence of failure to support designated uses (e.g. swimming). The use of the term "unlawful" is intended to distinguish between sources of indicator bacteria that are "lawful" (e.g. the sewage treatment facility discharge that may not be required to disinfect during the winter months), versus "unlawful", such as a failed septic system or a sewage treatment facility discharge that is not properly disinfected.

27. Comment: Three sets of comments (IWRD, RBT, EPA) were received concerning the definition of ***surface water***. The language *"those portions of inland wetlands inundated .... adapted for life in saturated soil conditions"* was viewed as either confusing (IWRD, RBT) or too narrow (EPA). The proposed definition's mingling of state and federal definitions for wetlands was preferred (IWRD) or discouraged (RBT). One comment suggested a substantial rewrite of the definition (IWRD) while another questioned why the definition was needed in the first place as the statutes provided definitions (RBT). EPA recommended retaining the definition for "waters of the state" which the Department proposed be deleted.

Response: The general public generally understands that these Water Quality Standards apply to all rivers, streams, lakes, ponds, and estuaries. Less understood is that they also apply to certain inland and tidal wetland resources. Simply put, water quality criteria apply in wetlands having permanent standing water such as a marsh. They may also apply to vernal pools and other ephemeral surface waters that support existing and designated uses. Surface water quality criteria do not apply to land having saturated soil conditions, but not inundated, regardless of the presence or non-presence of wetland vegetation. That is not to say these non-inundated water resources have no relationship to these Water Quality Standards. Indeed, Standard 33 describes how to evaluate water quality criteria and existing and designated uses when evaluating discharges or the placement of fill in wetland resources.

Neither the definition of "waters of the State" appearing in the 1997 version of the Standards nor the proposed definition of "surface water" adequately address the matters described above. The Department believes common usage of the term "surface water" should be clear enough and further believes, given more than 30 years experience, arguments concerning where surface water quality criteria do or do not apply will be rare and best addressed on case-by-case basis and application of common sense. The proposed ***surface water*** definition should, therefore, be modified to reflect the common language usage of this term as follows:

"Surface water

> means the waters of Long Island Sound, its harbors, embayments, tidal wetlands and creeks; rivers and streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and other natural or artificial, public or private, vernal or intermittent bodies of water, excluding groundwater."

28. Comment: Why is the definition of ***tidal wetlands and creeks*** proposed for deletion? (EPA)

Response: These resources are commonly understood to be surface waters as defined in response to Comment 27 above.

29. Comment: The definition of ***toxic substance*** should be broadened as follows: "Any substance which can adversely affect the survival, growth or reproduction of fish, other forms of aquatic life, other wildlife or humans exposed thereto either by direct contact or through consumption ~~of aquatic organisms~~." (EPA)

Response: The definition will be modified as suggested to read:

"Toxic substance

means any substance which can adversely affect the survival, growth or reproduction of fish, other forms or aquatic life, other wildlife or humans exposed thereto either by direct contact or through consumption."

30. Comment: The definition of ***use attainability analysis*** (UAA) should be updated to reference Chapter 2 of EPA's 1994 Water Quality Standards Handbook (rather than Chapter 3 of the 1983 edition). Also, the term "designated" should be deleted in the proposed and current definition because UAAs can also be used to determine if a use that is not currently designated is attainable. (EPA)

Response: It is more appropriate to reference the federal regulation that specifies the components of a UAA since federal guidance concerning these analyses is not binding and subject to significant interpretation as to precise meaning. Therefore the definition will be revised to read:

"Use attainability analysis

means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting the ability of a surface water to achieve and support uses as described in federal regulation at 40 CFR 131.10."

31. Comment: In the definition of ***water quality-based treatment***, change the reference from 302 to 301(b)(1)(C), since the latter section is the correct one for imposing water quality based limits under the CWA. (EPA)

Response: Upon review it was discovered that this phrase does not appear in these Water Quality Standards and therefore will be deleted in its entirety.

32. Comment: There is concern that the ***zone of influence*** (ZOI) definition refers to impairment of use. Consistent with Standard 10, which clearly states that the ZOI shall not preclude the attainment of any existing or designated use, ZOI's (mixing zones) should be located and sized to ensure that uses are not impaired and the integrity of the water as a whole is maintained. Rather than the 1997 or proposed definition, we suggest that ZOI be defined as follows, based on a modification of EPA's definition of mixing zones from the "Technical Support Document for Water Quality-Based Toxics Control," (EPA/505/2-90-001), March 1991: "An area where an effluent discharge undergoes initial dilution and may be extended to cover the secondary mixing in the ambient waterbody. A zone of influence is an allocated impact zone where certain water quality criteria can be exceeded as long as acutely toxic conditions to organisms passing through the zone of influence are prevented." (EPA)

Response: The concern regarding protecting the integrity of a surface water's existing and designated uses as a whole is addressed directly in Standard 10. The phrase "impairment of use" in the proposed definition will be deleted since it may lead to broader interpretation than intended as indicated in Comment 32. The phrase "inconsistency with water quality criteria" will be substituted so that the definition reads:

"Zone of influence

means an area or volume of a surface or ground water within which some degradation of water quality or inconsistency with water quality criteria is

anticipated as a result of a pollutant discharge. The term zone of influence may be used to describe an area impacted by thermal, conventional, or toxic pollutants."

33. Comment: The definition for ***zone of influence*** should be clarified in relationship to a mixing zone (zone of initial mixing) and to describe the temporal and spatial limitations that apply to the impairment of use contained in the existing definition. Also, does this impairment allowance apply equally to designated and existing uses and to all water quality parameters? (FWS)

Response: The definition of zone of influence, as proposed to be modified (see response to Comment 32 above), will no longer refer to "impairment of use". Whereas "mixing zones" can be defined based on the physical characteristics of effluent and receiving water only, zones of influence are based on broader considerations, such as biological effects resulting from excursions above adopted water quality criteria within a defined and limited area.

34. Comment: The ***zone of passage*** definition should be broadened as follows: "Area or volume of flow in a receiving water within which ~~the concentration of~~ pollutants, including toxic chemicals and ~~or~~ temperature, ~~elevations are below levels which would~~ will not impede or prohibit the passage of free swimming and drifting ~~aquatic~~ organisms or otherwise impact their populations." (EPA)

Response: The intent of the addition of the phrase "or otherwise impact their populations" is vague and rationale to support its inclusion in the definition is not provided. The other recommended changes will be made so that the definition reads:

"Zone of passage"

means an area or volume of flow in surface water within which pollutants, including temperature, will not impede or prohibit the passage of free swimming or drifting aquatic organisms."

Surface Water Quality Standards

35. Comment: Standard 1 should be revised and made consistent with the national goal to restore and maintain the chemical, physical and biological integrity of the nation's waters. Connecticut's goal of restoring and maintaining existing and designated uses is not clearly comparable to the goals in section 101 of the federal Clean Water Act regarding the protection and propagation of fish, shellfish and wildlife. The standards also do not contain a restoration use goal, nor a mechanism to attain and maintain the ultimate national goal, e.g., a classification or use designation. (FWS)

Response: Standard 1 describes Connecticut's goal to restore and maintain existing and designated uses. Such uses can only be achieved if the physical, chemical, and biological integrity of surface waters are restored and maintained. Similarly, attaining the federal Clean Water Act's interim goal (protection and propagation of fish, shellfish and wildlife) can only be achieved if existing and designated uses are restored and maintained. Nevertheless, "protection and propagation of fish, shellfish and wildlife", as well as the words "restore and maintain the physical, chemical and biological integrity" is more explicit and

arguably easier to understand than to "restore or maintain existing and designated uses". Standards 1 and 2 should be revised to include these more explicit terms as follows:

"Standard 1. It is the State's goal to restore and maintain the chemical, physical and biological integrity of surface waters. Where attainable, the level of water quality that provides for the protection and propagation of fish, shellfish and wildlife and recreation in and on the water shall be achieved.

"Standard 2. Water quality necessary to support existing and designated uses such as uses for propagation of fish, shellfish, and wildlife, recreation, public water supply, agriculture and industrial purposes shall be restored and maintained."

36. Comment: Several comments were submitted concerning the application of Standard 3 and whether this standard inappropriately restricted use of the Anti-degradation Implementation Policy to certain Class B or Class SB surface water. (EPA, FWS)

Response: The comments correctly point out an unintended limitation of Standard 3. The Connecticut Anti-Degradation Implementation Policy ("the Policy", see Appendix A) addresses other classes of surface water such as Classes A, SA, and AA. Accordingly, Standard #3 will be revised as follows:

"Surface waters with an existing quality better than the criteria established in these Water Quality Standards shall be maintained at their existing high quality, unless the Commissioner finds, after adequate opportunity for intergovernmental review and public participation, that allowing lower water quality is necessary to accommodate overriding statewide economic or social development, and that existing and designated uses will be fully protected. The implementation procedures for the anti-degradation provisions of these Water Quality Standards are provided in full in Appendix E".

37. Comment: Standard 4 appears to reflect the portion of the federal high quality water provision at 40 CFR 131.12(a)(2) that states: "Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and cost effective and reasonable best management practices for non-point source control." To ensure that Connecticut's water quality standards are consistent with the federal provision, Standard 4 should be revised to include existing discharges. (EPA)

Response: Standard 4 will be revised to include the phrase, "For all new and existing discharges" as follows:

"For all new and existing discharges to high quality surface waters, the Commissioner shall, at a minimum, require National Pollutant Discharge Elimination System (NPDES) discharge permit applicants to meet the highest applicable standards of performance promulgated pursuant to the Federal Clean Water Act as well as Sections 22a-426, 22a-430, and 22a-436 of the Connecticut General Statutes, and require additional control measures deemed necessary to prevent pollution and maintain high water quality. The Commissioner shall also require the use of appropriate Best Management Practices for control of point and non-point source discharges, dredging activity, and the discharge of dredged or fill materials, to high quality surface waters."

38. Comment: In Standards 4 and 9, the proposed revisions appear to allow the discharge of dredged and fill material into areas (such as Class AA waters) where such discharges are currently forbidden. (EPA)

Response: There are no prohibitions in the current adopted Water Quality Standards on the "discharge of dredge or fill material". Standard 4 takes note of the Commissioner's existing authority to regulate such activities and require appropriate controls necessary to meet water quality criteria and protect existing and designated uses. These revisions are intended to improve public understanding of the regulated practices of dredging, dredged material disposal and the placement of fill. The changes will also help to provide greater consistency throughout the Water Quality Standards. No change will be made.

39. Comment: With respect to dredged material disposal in Standards 4 and 9, water column assessment tools are available for use in the dredging permit and water quality certification review process (i.e., the elutriate test for water quality criteria evaluations). EPA's national guidance (Section 404 Inland Testing Manual) provides detailed procedures for the states to include these reviews as part of their water quality certification. Connecticut only uses sediment chemistry and, when available, sediment toxicity and sediment bioaccumulation tests for their permit and certification. By requiring elutriate tests (or the sediment screen test) DEP could determine whether the discharge meets the acute aquatic life criteria. Thus, similar to the Rhode Island WQS, we recommend that DEP's procedures for review and approval of potential dredge material disposal include, but not be limited to the approaches presented in the manual titled, *Evaluation of Dredge Material.* (EPA)

Response: These Water Quality Standards are not meant to prescribe all assessment tools available for these specialized water column assessments. Assessment authorities and procedures may be found in statutes, implementing regulations for other programs, management plans and various guidance documents. Nothing in these Water Quality Standards limits the Commissioner's authority to use the referenced EPA national guidance. No change to the Water Quality Standards will be made.

40. Comment: Consistent with EPA guidance, it is acceptable for Connecticut to allow lowering of water quality in Outstanding National Resource Waters, if it is limited to short term and temporary degradation and the water quality necessary to protect existing and designated uses is maintained (see EPA's WQS Handbook, Section 4.7). To ensure interpretation consistent with the federal provisions, the second sentence of Standard 5 should be revised as follows: "The lowering of water quality is prohibited for such surface waters except where activities limited in time and scope will result in only temporary and insignificant changes in water quality, and the activities will not result in water quality less than necessary to protect existing and designated uses." (EPA)

Response: The language will be revised as follows:

"If the Commissioner designates a high quality water as an Outstanding National Resource Water pursuant to federal regulations at 40 CFR 131.12(a) the high quality water shall be maintained and protected. The lowering of water quality is prohibited for such surface waters except where activities limited in time and scope will result in only temporary and insignificant changes in water quality, and

the activities will not result in water quality less than necessary to protect existing and designated uses."

41. Comment: Standard 6 should reference 40 CFR 131.10(g) and (j) to ensure that use attainability analysis (UAA) is consistent with the federal requirements. Further DEP should take note of the need to periodically re-examine any water body segment with designated uses that do not include those specified at 101(a)(2) of the Clean Water Act. (EPA)

Response: The Department is aware of this regulatory provision and will amend this Standard to clarify for other interests that a periodic re-examination of such designated use decisions is required by federal regulations (40 CFR 131.20). The regulatory references will also be added as suggested so that the Standard reads:

"Standard (1) shall be met except where (1) a use attainability analysis prepared pursuant to federal regulation at 40 CFR 131.10(g) and (j) demonstrates that the surface water has been irreparably altered to the extent that certain designated uses have been permanently lost; and (2) quality criteria necessary to protect all other existing, and designated uses of the surface water have been adopted by the Commissioner as a revision to these Water Quality Standards in accordance with Section 22a-426 of the Connecticut General Statutes. Periodic re-examination of such designated use decisions shall be performed as required by federal regulation (40 CFR 131.20)."

42. Comment: Several comments were made questioning whether Standard 8 excuses noncompliance with criteria for human caused activities. Recommendations were made to limit this Standard to a discussion of natural conditions that would exist "in the absence of human influence". A comment was also made that water quality is the result of natural events and therefore the first sentence should be revised. (EPA, FWS)

Response: All surface waters in Connecticut are influenced to some degree by human influence (e.g. atmospheric deposition). Given this reality, this Standard recognizes that incidental water quality criteria excursions caused by human or other natural causes should not automatically be assumed to indicate a lack of compliance with water quality criteria or non-attainment of existing or designated uses. The Standard, however, should be revised to better address the nature of the concerns associated with these comments. The last sentence will be amended by replacing the phrase "result in the loss" with "adversely impact" as a further modifier of acceptable "natural causes" so that the Standard reads:

"Water Quality Criteria do not apply to certain conditions brought about by natural causes. Natural hydrologic and geologic conditions may cause excursions from established criteria. The meaning of the word "natural" is not limited to only those conditions which would exist in water draining from pristine land. Conditions which exist in surface water, in part due to normal uses of the land, may be considered natural, provided best management practices are used. It shall not be considered normal use of the land if excursions from established criteria adversely impact an existing or designated use."

43. Comment: Clarify the last sentence in Standard 9(A), i.e., "Any such discharge shall be treated or controlled to a level which in the judgment of the Commissioner, protects aquatic life and public health." Is it intended to have the

same meaning as ensuring that the criteria and use goals applicable to the water's classification are met? (EPA)

Response: The phrase "protects aquatic life and public health" is synonymous with "meeting criteria and use goals". The phrase "protects aquatic life and public health" however, is more readily understood by members of the general public and will be retained. No change will be made.

44. Comment: Standard 9(A) was modified to include dredging activity and the discharge of dredged or fill material as allowable activities in Class AA, A and SA waters. Does this mean that dredge material from a Class SB or SC water can be disposed in SA waters? It is not clear why Connecticut would encourage the discharge of dredged or fill material into AA, A and SA waters since these are high quality waters and they should be protected from these activities or at the least, these activities should be restricted by water quality criteria and the state's anti-degradation policy. At a minimum for dredged material disposal, a requisite in the standards should be that the material be dredged from the same or higher classification of waters as the disposal site and that these waters where dredging occurs fully meet the standards of its classification before disposal could be allowed into waters with an equal classification. (FWS)

Response: These revisions do not change the management of dredging and dredged material disposal. Further, the language speaks of what may be "allowed" rather than "encouraged". The revisions are intended to improve public understanding of the regulated practice of dredging and dredge material disposal. Dredged sediments from Class SB harbors have historically been safely disposed of at designated disposal areas in Class SA waters and the Commissioner may continue to allow these practices consistent with these Water Quality Standards and any State or federal regulations that may apply. These disposal practices, plus the placement of fill in Class AA or Class A waters, and the occasional removal of sediments (dredging) from Class AA or A reservoirs, lakes and ponds may be allowed if such activities can be accomplished in a manner consistent with these Water Quality Standards, including when appropriate, the Anti-degradation provisions. No change will be made.

45. Comment: In Standard 9(C) and (D), suggest use the words "prevent the attainment of" be used rather than "prevent ... from attaining". (RBT)

Response: The suggested changes will be made so that the Standard reads:

"(C) The designation of surface water as Class C/B, D/B, SC/SB or SD/SB shall not be a reason for authorizing a new discharge that would prevent the attainment of Class B or Class SB designated uses and quality criteria.

(D) The designation of a surface water as Class B/AA, B/A, C/A, SB/SA or SC/SA shall not be a reason for authorizing a new discharge that would prevent the attainment of Class AA, A, or SA Water Quality Criteria."

46. Comment: In Standard 10, the language "moved from subpart (D)" is very different than the language which previously existed in subpart (D). "As a guideline" effectively was replaced by "limited to the maximum extent possible but in no case". Is such a major change necessary and does the form of presentation

in the proposed revisions provide effective notice of the scope of the proposed change? (RBT)

Response: In retrospect, the 25% cross sectional area / volume of flow guideline has served the Department well. Replacement of the phrase "as a guideline" with "but in no case" is not necessary to insure that the process of allocating zones of influence protects existing and designated uses. Therefore, Standard 10 will be revised to read:

".....The zone of influence for assimilation of a thermal discharge shall be limited to the maximum extent possible. As a guideline, the zone of influence for assimilation of a thermal discharge shall be no greater than 25% of the cross-sectional area or volume of flow of the receiving water....."

47. Comment: In Standard 10, "water temperature" should not be dropped from the factors to be considered during an assessment of environmental value. (RBT)

Response: Water temperature is a critical factor in assessment of environmental value and will be added back into the list of factors used in assessment of environmental value in subpart (E) of Standard 10 as follows:

"(E) .....Assessment of environmental value will be based on the characteristics of the receiving surface water including but not limited to: type of water body, velocity, depth, number and type of aquatic habitats, migration patterns, nature of the food chain, level of productivity, water temperature, ability of tributaries to provide biological recruitment, presence of endangered species and value to human uses (aesthetic, commercial, sport fishing, and recreational uses)."

48. Comment: In Standard 10 the following is suggested to ensure that Connecticut's zone of influence provision is consistent with EPA's mixing zone policy as presented in the "Water Quality Standards Handbook: Second Edition", EPA-823-B-94-005a, August 1994.

The first paragraph of Standard 10 states that unless otherwise indicated in the water quality standards, the applicable water quality criteria apply "outside the zone of influence". To be more specific, "outside the zone of influence" should be revised to "at the edge of the zone of influence." (EPA, FWS)

Response: Connecticut's water quality criteria apply to all surface waters with the exclusion of waters within an allocated zone of influence. Modification of the statement in Standard 10 to suggest that criteria apply at the "edge" of a zone of influence unduly limits their application and could be interpreted to mean that they do not apply to other surface waters. If water quality criteria apply outside the zone of influence, they clearly apply at the "edge" as well. Consistency with the wording used in EPA's mixing zone policy, while a worthwhile objective, is not appropriate in this instance due to subtle differences between allocated zones of influence as allowed in Connecticut's Water Quality Standards and mixing zones as presented in the referenced EPA guidance. No change will be made.

49. Comment: In Standard 10, a provision prohibiting lethality to organisms passing through the zone of influence should be added. It should also be recognized that to achieve such a provision, it may be necessary to meet acute

criteria at a point within the outer bounds of the zone of influence (see illustration on page 5-4 of the Water Quality Standards Handbook and related discussion). (EPA, FWS)

Response: The concern appears to be one of semantics since zones of influence are established to protect existing and designated uses. It is difficult to envision a situation where acute criteria would not need to be met within the outer bounds of an allocated ZOI. Further, lethality to organisms passing through a ZOI will be prevented if zones of influence are established that protect the biological integrity of the receiving water from impairment. No change will be made.

50. Comment: In Standard 10, the following in-zone quality criteria should be added (pages 5-5 and 5-6 of the WQS Handbook): no materials in concentrations that settle to form objectionable deposits; no floating debris, oil, scum, and other material in concentrations that form nuisances; no substances in concentrations that produce objectionable color, odor, taste, or turbidity; and no substances in concentrations that produce undesirable aquatic life or result in a dominance of nuisance species. (EPA)

Response: The suggested text would strengthen the consideration of aesthetics when establishing zones of influence. Standard 10 will be modified by adding a new subsection to be inserted between the proposed subsections (C) and (D) and revising the subsection lettering to read:

"(A) The characteristics of the discharge.....
(B) An allowance for.....
(C) The effect of the discharge on spawning.....
(D) The effect of the discharge on the aesthetic quality of the receiving water including but not limited to the potential to cause objectionable deposits, floating debris, oil scum, and other materials that form nuisances or produce objectionable color, odor, taste, or turbidity, or that may attract undesirable aquatic life or wildlife, or result in the dominance of nuisance species."
(E) The location of other discharges....."

51. Comment: In Standard 10, it is not clear if the zone of influence would or would not preclude the attainment of existing or designated uses inside the zone of influence? (FWS)

Response: Standard 10 provides that water quality criteria apply outside the ZOI. This means that certain uses may not be attained within the ZOI. Therefore, some existing or designated uses may not be supported inside the zone of influence at all times. Consistency with Standard 10 requires that zones of influence be specifically limited to insure that the surface water resource supports existing and designated uses. The text in line 7 indicating that establishing a ZOI "shall not preclude attainment of existing or designated uses of the receiving water" is in reference to the surface water as a whole. No change will be made.

52. Comment: In Standard 10, zones of influence should be sited so as to avoid spawning and nursery grounds and other ecologically sensitive areas not merely considered as discretionary as in subsection 10.C. (FWS)

Response: The language in Standard 10 provides the Commissioner adequate and sufficient flexibility and discretion to establish zones of influence based on the site-specific characteristics of the discharge and receiving waters while protecting existing and designated uses, including spawning and nursery grounds. No change will be made.

53. Comment: EPA and FWS submitted numerous comments regarding Standard 11 and its water quality management program applications. Clarification was requested regarding how the magnitude, duration, and frequency components of the numeric criteria listed in Appendix D are considered during implementation of criteria in regulatory decision making. How Standard 11 is used to evaluate certain other activities regulated by the Department that affect stream flow such as permitting water diversions was also questioned. (EPA, FWS)

Response: Standard 11 establishes the 7Q10 base stream flow as the minimum flow to which criteria apply. This is relevant to interpretation of criteria that presently have no frequency or duration component such as temperature, pH, and dissolved oxygen. For example, modeling of river systems for the purpose of developing wasteload allocations for oxygen demanding substances discharged by municipal sewage treatment plants is generally performed to simulate conditions that would exist during 7Q10 conditions. Standard 11 also informs the public that some criteria may not be met during periods of lesser flows such as during an extreme drought.

With regard to permitting limits for toxic pollutants, implementation procedures are specified in the Regulations of Connecticut State Agencies. Section 22a-430-3(j) of these regulations requires permit applicants to provide DEP with information relative to the potential impact of their discharge on water quality under 7Q10 conditions. DEP uses this base information to evaluate the potential for the proposed discharge to cause pollution impacts in the receiving stream during periods of low streamflow when pollutants are minimally diluted by receiving flow.

Discharge permit limits are derived pursuant to these same regulations (see Section 22a-430-4(l) and (m)). These sections of the regulations provide the authority and implementation procedures for derivation of water quality-based permit limits. Where appropriate, the DEP may allocate a portion of the receiving water to a Zone of Influence following consideration of the specific discharge and receiving water characteristics listed in Standard 10. The volume of flow available within the zone of influence for dilution and assimilation of pollutants may exceed the 7Q10 if the duration component of the criteria is greater than 7 days (such as some health effects-related criteria). For pollutants with duration components of less than 7 days (e.g. metals, chlorine) the allocation is a fraction of the 7Q10 in order to remain consistent with the use protection provisions of Standard 10. Limits are derived using procedures recommended in EPA guidance (Technical Support Document For Water Quality-based Toxics Control EPA/505/2-90-001). This process insures the magnitude, frequency, and duration components of the criteria are not exceeded outside the Zone of Influence.

With respect to other regulated activities, Standard 11 is not a minimum flow standard for regulation of water quantity, nor does this Standard limit application of the water quality criteria to only that flow. DEP has the authority (Water Diversion Policy Act) to regulate new (after 1981) activities that alter stream flow. DEP reviews invariably involve consideration of the flow, other than 7Q10, needed to support full life cycle functions of aquatic life and wildlife as well as providing for other designated uses such as drinking water supply and recreation. No change in

the Standard will be made.

54. Comment: In Standard 11, the phrase "by dams or water withdrawals sanctioned by law" should be clarified with respect to the limitations on the commissioner's authority to promulgate minimum flow regulations which is limited to specific structures on streams that the Department stocks with fish. In addition, the citation in the reference to the Federal Power Act should be corrected, i.e. 16 USCS § 791a et seq. (RBT)

Response: Use of the phrase "by dams or water withdrawals sanctioned by law" was added to provide the reader with an understanding that some activities that alter natural stream flow are currently regulated. The Minimum Flow Regulations were established for the specific purpose of providing adequate flow releases below some, not all, public water supply reservoirs. Standard 11 recognizes these regulations as a controlling stream flow mechanism below some, long established public water supply reservoirs that result in stream flow releases less than 7Q10. New or expanded facilities that regulate flow must be judged, in part, on the basis of these Water Quality Standards. Adding clarifying language concerning the regulatory scope of the Department's Minimum Flow Regulations is not warranted as regulatory reference is provided if the reader wants more detailed information. Therefor no change will be made, except that the federal regulatory citation appearing in Standard 11 will be revised to read: "(Federal Power Act 16 USCS SEC 791a et seq.)".

55. Comment: Standard 12 should be amended to include a reference to wildlife in order to be consistent with the federal Clean Water Act goals. (EPA, FWS)

Response: DEP considers "aquatic and marine life" protection to be equivalent to protection for "wildlife". However, Standard 12 will be amended to provide greater consistency with the federal Clean Water Act as follows:

"... do not cause acute or chronic toxicity to freshwater and marine aquatic life and wildlife, do not impair the biological integrity of freshwater and marine ecosystems and do not create an unacceptable risk to human health."

56. Comment: In Standard 12, the existing and the proposed language of this section is disconcerting. The primary obligation of the Commissioner under the Clean Water Act is to control and eliminate pollution. Pollution is not limited to the causation of acute or chronic toxicity to aquatic and marine life, the impairment of the biological integrity of aquatic or marine ecosystems, or unacceptable risks to public health. (RBT)

Response: Standard 12 does not limit the Commissioner's statutory authority to require the abatement of other types of pollution. The purpose of Standard 12 is to introduce the list of very detailed numeric water quality criteria for "toxic pollutants" (Appendix D) required by federal regulation. Standard 12 also provides notice that the Department will consider these criteria when making a decision regarding permitting of wastewater discharges to insure that the criteria are not exceeded in the receiving surface water as a result of a discharge. The proposed language accomplishes this objective and no change will be made.

57. Comment: In Standard 12 the words "or activities" should be added after the word discharges on line 3 to make the standard more consistent with case law and subsection 12(A). (FWS)

Response: The statutory definition of "discharge" is broad enough to include "activities" Therefore, no change will be made.

58. Comment: Standard 12, subsection 12(B) should be modified to address section 101(a) of the Clean Water Act as follows:
Add a new (B)4 criterion "The proposed site-specific criteria for the waters subject to the request are sufficiently stringent to protect all life cycle functions and life stages of aquatic life and wildlife at a reference site free from point and non-point source discharges and other cultural influences. "
Amend line 3 of Standard 12(B) to reference the new B(4) criterion above; and
Delete the word "and" after the comma on the last line of the revised standard and insert the following phrase at the end of the sentence "and aquatic life and wildlife expected to occur in the waters without point and non-point source discharges and other cultural influences are fully protected". (FWS)

Response: As discussed in the response Comment 42, there are no Connecticut surface waters that are free from point, non-point and other cultural influences. A criteria based on a reference condition that does not exist sets a meaningless standard. No change will be made.

59. Comment: In Standard 13, it appears that most references to statutory authority are written by citing the section number "of the Connecticut General Statutes" or "of the General Statutes". In this section a new procedure is introduced "C.G.S. Section 22a-426". It is suggested that a single form of citation be adopted and that it not be "C.G.S.". A similar comment could be made with respect to the Regulations of Connecticut State Agencies or "R.C.S.A". (RBT)

Response: Statutes and regulations will be consistently cited without use of acronyms.

60. Comment: Several comments were made concerning whether Standards 14 and 15 will be protective of federal Clean Water Act goals. One comment suggested the Standards create exceptions from the requirement to protect aquatic life from acute or chronic toxicity. Another concern was expressed that the placement of contaminated dredged material might lead to potential acute, or chronic toxicity and bioaccumulation pollution problems. Greater clarity regarding the intent of these Standards was also requested. (EPA, FWS)

Response: The proposed changes do not modify existing dredging and dredge material disposal authorities or management practices. They are intended to add clarification regarding how these activities are evaluated by the Commissioner for consistency with Connecticut's Water Quality Standards. The use of the zone of influence in helping to evaluate such proposals is described and qualified. The Commissioner's authorities to require that best management practices be implemented to achieve consistency with these Standards are reinforced. Each Standard provides important limitations on these practices for the purpose of protecting aquatic life and minimizing bioaccumulation potential. Sediments to be dredged, for example, which potentially exhibit adverse biological effects may only be disposed of at disposal sites approved by the Commissioner when

sequestered by capping with cleaner material to eliminate these potential threats. In practice, some very poor quality dredged sediments must be disposed of on land as they will not be approved for disposal at a designated dredged sediment disposal area in Long Island Sound regardless of the amount of clean capping material proposed.

Studies by the U.S. Army Corp of Engineer DAMOS Program of existing Long Island Sound dredged material disposal sites have clearly demonstrated the viability of capping as an appropriate (protective) best management practice for certain sediments unsuitable for unconfined open water disposal. Rapid re-colonization of these sites has been documented as well as the effective sequestering of pollutants beneath such caps. The Commissioner, when considering applications for dredged material disposal or the placement of fill, must ensure consistency with all Water Quality Standards. No change will be made.

61. Comment: Standard 16 provides for the use of benthic invertebrate criteria where appropriate for the assessment of biological integrity. If Connecticut has developed a protocol for this biocriteria standard and criterion #13 of the surface classifications for fresh water (AA, A, B) it would be useful to reference it here. It is recommended that the first sentence be modified as follows: Benthic invertebrate criteria shall be utilized for the assessment of biological integrity and classification attainment of surface waters. This change would make standard 16 somewhat more substantive and less discretionary. (FWS)

Response: This standard must remain discretionary because the application of biocriteria is not always appropriate. For example, the benthic invertebrate community can be limited by natural habitat. No change will be made.

62. Comment: The definition of ***atmospheric deposition*** is not required to support the use of the term in Standard 19 and the addition of proposed language is misleading regarding the Commissioner's authority to control such sources. In order for the Commissioner to act, he would have to assert that the atmospheric deposition substances or materials was a discharge to water of the state and require the responsible party to file an application to discharge to waters of the state (Section 22a-430, CGS) or issue an Order to abate pollution (Section 22a-432, CGS). Also, use of the term "controls" is superior to 'best management practices and discharge limitations" due to the procedure that would have to be used to impose requirements. (RBT)

Response: The reference to atmospheric deposition as a source of pollutants contributing to eutrophication of surface waters is appropriate based on recent scientific studies that identify atmospheric deposition as a significant contributor to of plant nutrients to Long Island Sound and will be retained. Upon further review, it is reasonable to broaden this standard to incorporate other types of pollutants, such as mercury, that are potential causes of impairment and that are deposited in surface waters primarily as a result of atmospheric deposition. The comment properly recognizes "controls" as a broader statement of the Commissioner's authority, therefore the phrase "or other controls" will be added to the language in Standard 19 (see response to Comment 63 for complete text of revised Standard).

63. Comment: In Standard 19, the first sentence should be revised to read: "Best Management Practices and discharge limitations on point and non-point sources

of phosphorous and nitrogen which contribute to the eutrophication of any surface water ~~may~~ shall be required by the Commissioner on a case-by-case basis as necessary to ensure maintenance and attainment of existing and designated uses." (EPA)

Response: Standard 19 will be revised as follows.

> "Best Management Practices, discharge limitations or other reasonable controls on point and non-point sources of pollutants, including sources of atmospheric deposition, which contribute to the impairment of any surface water shall be required by the Commissioner on a case-by-case basis as necessary to ensure maintenance and attainment of existing and designated uses."

64. Comment: Standard 19 should be revised to include numeric nutrient criteria for all surface waters. The recent TMDL for Long Island Sound and other water quality investigations conducted by the Department and other parties should provide a reasonable basis for the development and adoption of numeric criteria for nitrogen and phosphorous. (FWS)

Response: The Department will consider the adoption of numeric nutrient criteria during the next major revision of the Water Quality Standards. Such criteria must be directly linked to impacts or impairments of existing or designated uses.

65. Comment: Standard 21 appears to clarify the application of this Standard relative to public drinking water supplies in Class AA and Class A surface waters. What constitutes a "proposed" drinking water supply? What is the difference between a "proposed" and "potential" drinking water supply regardless of classification? (EPA)

Response: The distinction between "proposed" and "potential" drinking water supplies constitutes the fundamental difference between Class AA and Class A surface waters. Class AA surface water designated uses include existing and "proposed" drinking water supplies. "Proposed" refers to surface waters identified as future public water supplies in the Long Range Plan for Management of Water Resources (no such plan presently exists). The Commissioner may also classify surface water AA, following a public hearing process, if (1) it is designated a proposed public drinking water supply in Connecticut's Conservation and Development Policies Plan (a legislatively approved document prepared by the Office of Policy and Management); (2) it was recommended in a water company's water supply plan, (3) a Diversion Permit for such use was authorized, or (4) a municipality requested such designation at a public hearing concerning water quality classifications.

All freshwater resources, not otherwise designated Class AA or Class B, are Class A and considered "potential" drinking water supplies even if water companies presently have no plans for their use as a drinking water supply. Finally, it is important to note that not all surface waters identified in individual water supply plans as future sources of public water supply will be developed for that use within 50 years, if ever. The Commissioner will use judgment regarding which of these potential long-term water supply resources shall be designated Class AA as a "proposed" water supply resource. The statutory management implications of Class AA designations are very significant (i.e. elimination of point source discharges). Class B surface waters, which may have water quality

suitable for drinking water supply following treatment, are not considered to be "potential" drinking water supply per these Water Quality Standards due to the presence of point source discharges. In order to clarify this issue, Standard 21 will me modified to read:

"Surface waters identified as potential drinking water supplies in the Long Range Plan for Management of Water Resources prepared and adopted pursuant to Section 22a-352 of the Connecticut General Statutes shall be designated Class AA. The Commissioner may designate other surface waters as Class AA including surface waters that (1) have been designated a proposed public drinking water supply in Connecticut's Conservation and Development Policies Plan; (2) have been recommended for future use as a drinking water supply in a water company's water supply plan, (3) the Commissioner has issued a Diversion Permit authorizing use as a drinking water supply, or (4) have been identified in a request from a municipality for designation as a drinking water supply at a public hearing concerning water quality classifications."

66. Comment: In Standard 23, the term "domestic sewage" is used, but the use of that term in the context of the statement may not be as accurate as the term "sewage". The definition of ***domestic sewage*** was created in Section 22a-430-1 of the Regulations of Connecticut State Agencies to differentiate types of discharges, specifically household and small commercial subsurface disposal systems, over which the authority to issue permits would be delegated by the Commissioner. Such a delegation was later required by subsection (g) of Section 22a-430 of the general statutes. (RBT)

Response: The words "domestic sewage" will be changed to "sewage" throughout Standard 23.

67. Comment: In Standard 24, Sections 15-170 through 15-176 of the General Statutes do not confer any authority to the commissioner by which he can, by regulation, define marine waters where the discharge of sewage, sink and galley wastes from boats is prohibited. Section 15-171 provides that "No person shall discharge sewage from any vessel within a no discharge zone." Sink and galley wastes are not mentioned, nor are they included within the definition of "sewage" in Section 15-170. The definition of "sewage" is unique to the original act (P.A. 91-173 as amended). Although some of the language in the Clean Water Act (Section 22a-423) and appearing elsewhere in the water quality standards is used in Standard 24, it is not consistent. This is especially true since the statute includes the provision that the sewage be "in an amount which is determined by regulation by the Commissioner of Environmental Protection to be detrimental to the public health". A "no discharge zone" is defined in the statute to include only specific geographic areas defined in Section 15-170. The term "discharge" is defined in Section 15-170 in a manner that is inconsistent with the definition in the Clean Water Act and in the Water Quality Standards; and the term "Marine sanitation device" is also defined differently from the definition in the existing Water Quality Standards and in the proposed revisions under discussion. Of greatest concern is the fact that Sections 15-170 through 15-176 do not differentiate among navigable waters, inland waters and coastal and marine waters and that, by defining no discharge zones geographically through legislative action, the authority of the commissioner to otherwise define areas where discharges from vessels are prohibited has been compromised. It is recommend that all references to Sections 15-170 through 15-176 be deleted from the Water Quality Standards and that the commissioner seek legislative amendments to, at

least, clearly limit the no discharge zones defined in the referenced statutes to coastal and marine waters that are in fact plied by vessels of sufficient size to be equipped with marine sanitation devises. (RBT)

Response: The comment correctly points out several areas where confusion has arisen concerning the various statutes and regulatory approaches to managing discharges from boats. For example, as was pointed out there are different statutory definitions for "sewage" in Title 15, Navigation and Aeronautics (established Connecticut statutory requirement for "no-discharge zones" for boats in certain coastal areas and in most of the Connecticut River) and in Title 22a, Environmental Protection. It is clear however, that the Commissioner has broad authority to address any and all sources of pollution to surface waters. Standard 24 will be revised to provide a simple description of requirements to protect water quality of surface waters while identifying the specific regulatory references that are relevant to discharges from boats as follows.

"The discharge of sewage from boats in all inland fresh waters not amenable to interstate navigation is prohibited. Boat discharges in other surface waters are subject to the legislative provisions of Sections 15-170 through 15-176 of the Connecticut General Statutes and Section 312, entitled Marine Sanitation Devices, of the federal Clean Water Act."

68. Comment: Standard 25 appears to be an acknowledgment that where data show exceedences of indicator bacteria criteria, there may be uncertainties associated with the nature or extent of the problem causing the exceedences. Despite such uncertainties, we further understand Connecticut's standard to mean that the bacteria criteria are maximum levels not to be exceeded. If this understanding is incorrect, this needs to be discussed further. (EPA)

Response: Connecticut's criteria for indicator bacteria represent maximum levels not to be exceeded, unless and until a sanitary survey is completed that confirms that the exceedance was not caused by sewage of human origin. In this instance, the density of indicator bacteria in the surface water does not constitute as significant a threat to public health as it would if related to human fecal matter. Standard 25 provides some limited opportunity to employ professional judgment to interpret indicator bacteria data when evaluating whether a designated use such as swimming is being impaired. As an example, if a non-human source, such as large birds, has been confirmed as the source of elevated indicator bacteria levels by means of a sanitary survey, it may not be necessary to limit recreational uses of the water to protect human health. Numerous situations have been documented in Connecticut and other states where excursions above the indicator bacteria criteria have resulted from wildlife or other natural causes. Standard 25 provides the ability to conclude that these waters are not polluted (i.e. water quality is suitable for recreational use) and justifies focussing the Department's efforts on waters where greater public health risks exist. No change will be made.

69. Comment: In Standard 26, reference to "existing" uses should be deleted as existing uses cannot be removed. Further, a decision that a use is not attainable is not inherent in the definition of a use attainability analysis. Therefore, the following revision is suggested: "...unless the Commissioner has approved a Use Attainability Analysis documenting that a given use is not attainable for such surface waters." (EPA)

Response: Standards 26 will be revised to read as follows:

"Physical obstructions such as dams, which prevent fish migration for spawning and growth, shall not be considered a valid reason for failure to achieve and maintain water quality conditions necessary to support all designated uses of a surface water unless the Commissioner has approved a Use Attainability Analysis documenting that a designated use is not attainable for such surface water."

70. Comment: As Standard 28 refers to "methods" as well as quality assurance plans, we suggest that DEP include a reference to 40 CFR 136, and any list of approved state methods, in addition to 40 CFR 30. (EPA)

Response: 40 CFR 136 presents EPA approved effluent monitoring methods for NPDES regulated wastewater discharges, not methods for monitoring the ambient quality of surface water. Standard 28 will, however, be simplified by not referring to plans not readily available (Quality Assurance Project Plan) to read as follows:

"Surface water quality monitoring methods shall be consistent with Title 40 Part 30 of the Code of Federal Regulations or other equivalent monitoring methods approved in writing by the Commissioner."

71. Comment: In Standard 30, this statement used to read, "Watercourses which are contained in drainage conduits or pipes and which are not assigned a specific class are considered to be the class of the stream segment to which they discharge." The proposed language continues to drift from the original intent and that the original intent should be restored. (RBT)

Response: The comment refers to language first used in Connecticut Water Quality Standards, adopted September 20, 1977. Standard 30 will be revised to read:

"Watercourses which are contained in drainage conduits or pipes and which are not assigned a specific class are considered to be the class of the water body segment into which they discharge."

72. Comment: In regards to Standard 32, to complement Connecticut's water quality standards maps, DEP should maintain a narrative list that identifies each water body segment and its classification. The actual classification of each water body is an important part of a complete water quality standards package. (EPA)

Response: Connecticut's water quality standards maps currently provide the actual classification of each water body segment in an easily interpreted format that eliminates a number of problems associated with narrative lists (such as multiple water bodies with identical names). The maps also clearly show the connections between water body segments and do not require a detailed knowledge of local geography to interpret the precise beginning and ending points for each segment where Classifications may change. However, the Department recognizes there is some value in a narrative list and is open to further discussion with EPA regarding how such a list can most efficiently be generated. However, no change will be made to the Standard 32 at this time.

73. Comment: In Standard 32, while any revision to the water quality standards must be subject to public participation, we suggest that DEP include adoption of "Site-specific Criteria" in the list of highlighted actions. (EPA)

Response: The Standard will be revised with the addition of:

"(D) The adoption or amendment of site-specific water quality criteria".

74. Comment: Consistent with comments on anti-degradation and high quality water protection, the DEP should make the following revision to Standard 32(B): "Any decisions regarding the lowering of water quality in existing high quality ~~Class B or SB~~ surface waters..." (EPA)

Response: The Standard will be revised to read:

"(B) Any decisions regarding the lowering of water quality in existing high quality surface waters or a change in the Water Quality Classification of any surface water."

75. Comment: The first sentence in Standard 33 should be deleted. The applicability of water quality standards is defined in Section 22a-426 of the General Statutes. (RBT)

Response: Section 22a-426 of the Connecticut General Statutes specifies that the Commissioner "shall adopt standards of water quality applicable to the *various waters of the state or portions thereof...*" (emphasis added). In Standard 33 the first sentence clarifies that these standards apply to surface waters, a subcategory of waters of the state, and therefore will be retained. No change will be made.

76. Comment: DEP should adopt, at a minimum, a narrative criterion specific to maintaining instream flows and water quantity necessary to protect aquatic life and other designated and existing uses. Such a provision should be adequate to address human induced low flows, high flows, and water fluctuations. New Hampshire, for example, recently adopted the following: "Unless flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses."
EPA New England supports the inclusion of numeric instream flow criteria to facilitate implementation. When establishing numeric instream flow criteria for the protection of aquatic life and habitat, it is important to ensure that the criteria follow from a relationship between aquatic life protection and instream flows. At this time, for the protection of waters in New England, we believe application of USFWS's "Interim Regional Policy for New England Stream Flow Recommendations," 1981, and its Aquatic Base Flow (ABF) concept is most appropriate for establishing minimum requirements. (EPA)

Response: Aquatic life and other designated uses clearly cannot be supported without adequate flow. Proposals to initiate regulated activities that have a potential to reduce flow are routinely required to perform aquatic base flow studies to support a water diversion application. In order to grant a diversion permit the Commissioner must find that the proposed diversion is consistent with the standards, criteria, policies, and water quality classifications for ground and

surface water adopted and amended under section 22a-426 of the Connecticut General Statutes.

The suggestion to include a narrative criterion specific to maintaining instream flows and water quantity necessary to maintain aquatic life and other designated and existing uses is satisfied by the existing Standard 1. Further, Standard 11 states in part that "In those surface waters at, near or below the naturally occurring 7Q10 flow, more stringent Water Quality Criteria may be required to achieve and maintain existing and designated uses." Standard 11 also specifies that "Surface waters which are influenced by tidal forces or which experience short-term variation in flow due to periodic or irregular release from upstream diversions or other causes may require special consideration by the Commissioner when issuing discharge permits... in order to protect existing and designated uses".

The Department supports the development of a scientifically rigorous and formal approach for establishing aquatic base flow needs on a statewide basis. This was recommended to the Connecticut Legislature (see Report to the Connecticut General Assembly on State Water Allocation, dated January 2000, recommendation to develop a "Connecticut Aquatic Base Flow Methodology"). Until such time as a comprehensive methodology is established, no benefit is gained from amending the standards to incorporate additional narrative regarding minimum base flow requirements.

Surface Water Classifications

Comments Concerning Designated Uses

77. Comment: The language that leads into the designated uses should be consistent for all the classes. It is suggested: "These waters are designated for..." (EPA)

Response: All designated use descriptors for all Classes of surface water will use consistent language and be revised to read:

> "These surface waters are designated for..."

78. Comment: DEP should clarify the designated uses of "other purposes" and "other legitimate uses". Absent further information, it is difficult to determine if the uses are consistent with the Clean Water Act and whether or not they are protected by the assigned criteria. (EPA)

Response: The terms "other purposes" and "other legitimate uses" are needlessly vague and will be deleted from the list of designated uses assigned to all Classes of surface waters.

79. Comment: DEP should consider being more specific about the designated uses for "recreation" such as primary contact recreation, boating, and fishing. (EPA)

Response: Creating sub-categories of different recreational uses, while arguably more precise and user friendly for the public, would entail a detailed assessment

of nearly 6,000 miles of rivers and streams and over 2,000 lakes and ponds to establish which of the sub-categories apply, verifying existing uses, public outreach and hearing processes, and EPA approval of revised water quality classification maps. Precise definition of the existing and designated recreational uses is only necessary when a water quality management decision must be made concerning issuance of a permit or authorization that could impact on achieving or maintaining these uses. Currently, when questions regarding whether recreational uses may or may not be impaired by an activity, a detailed assessment of existing and designated recreational uses is performed specific to the resource in question. Prior to performing such an assessment, the Department considers all waters to exhibit quality suitable to support all sub-categories of recreational use. No change will be made.

80. Comment: The proposed designated use language for Class AA waters states that recreational use may be restricted. The notion that recreational uses may be restricted implies that Connecticut has adopted a hierarchical system where public water supply takes precedent over national goal uses such as the protection and propagation of fish, shellfish and wildlife and recreation in and on the water. Connecticut's designated uses need to be consistent with the national goals in section 101(a)(2) of the Act and EPA's water quality standards regulation as set forth and listed on Federal Register page 51409 of the November 8, 1983 rulemaking, 40 CFR Part 131. (FWS)

Response: Class AA surface waters must be of high quality and capable of fully supporting all recreational uses. However, in Connecticut's public water supply reservoirs, recreational uses are limited as a matter of State law in order to provide a very high level of assurance that the purity of drinking water uses will be maintained. Such recreational use restrictions have no bearing on achieving water quality capable of supporting recreation. Therefore, the phrase "Recreational uses may be restricted" is simply informational, adds no water quality standards meaning and will be deleted.

81. Comment: All designated use statements are missing language that clearly includes the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water. It is not at all clear that the requirement to support fish and wildlife habitat includes the requirement to provide for the protection of all life cycle stages and functions of all aquatic life and wildlife including any threatened or endangered species that would occur in surface waters. Expanding the designated use statement is recommended by inserting the following language after the words "fish and wildlife habitat;" on line 2: "all life cycles, processes and functions of all endemic aquatic life and wildlife;". (FWS)

Response: The Department interprets the phrase "fish and wildlife habitat" in the context of these water quality standards to mean water quality and habitat conditions suitable to support healthy aquatic life, including propagation and other life cycles. The statutory requirements for these Water Quality Standards (Section 22a-426 of the Connecticut General Statutes) and other language in these Water Quality Standards strongly and clearly supports this meaning. No change will be made.

82. Comment: The present shellfish program administered by the Department of Agriculture Division of Aquaculture and authorized local shellfish commissions under the National Shellfish Sanitation Program Manual of Operations may have

become too complex and variable to accurately be reflected in the Water Quality Standards. (RBT)

Response: The comment correctly points out the difficulty of properly associating the management of those resources with these Water Quality Standards and related water quality assessments. For example, it is not possible to maintain water quality classification maps that are updated every 3 years or more with shellfish harvesting decisions that change seasonally every year. Decisions by the Connecticut Department of Agriculture, Aquaculture Division to allow, conditionally allow, restrict, or otherwise manage the harvesting of shellfish resources rely upon indicator fecal coliform bacteria monitoring results (or the lack thereof), the presence of potential sources of fecal contamination, and other environmental factors. A Class SA coastal water body should have quality that can support unrestricted commercial and recreational shellfish harvesting, but may not for reasons other than water quality. For example, administrative decisions to restrict shellfishing in a certain area can be made based on the lack of recent water quality monitoring results, not at all necessarily related to actual water quality. This obviously complicates how the Department assesses water quality, determines attainment of designated uses, and develops accurate water quality classification maps. Nevertheless, commercial and recreational shellfishing, at various locations throughout most of Connecticut's coastal waters, are existing uses and have been designated uses for many years and will continue to be noted as such in these Water Quality Standards.

83. Comment: In the paragraph describing designated uses for Class SA waters, the phrase "where authorized" should be added following the word "consumption". (RBT)

Response: The phrase "where authorized" will be inserted into the Class SA designated uses so that this section reads:

> "These surface waters are designated for: habitat for marine fish, other aquatic life and wildlife; shellfish harvesting for direct human consumption where authorized; recreation; industrial water supply; and navigation."

84. Comment: Recommendations for the Class SB Designated Uses include: adding the word "commercial" ahead of the phrase "shellfish harvesting"; the deletion of the following language through and including the word "consumption"; and the addition of the phase "where authorized" in place of the deleted language. (RBT)

Response: Adding of the word "commercial" would improve the existing language as it more accurately reflects the type of shellfishing allowed in Class SB surface water. The suggestion to add the words "where authorized", would similarly more accurately reflect actual practices and help to discriminate between restrictions based on known water quality problems versus other administrative type shellfish harvesting restrictions. Finally, deleting reference to "depuration prior to consumption" is a management detail not relevant to the commercial shellfish harvesting as a designated use. The suggested changes will be made as recommended so that the designated uses for Class SB waters reads:

> "These waters are designated for: habitat for marine fish, other aquatic life and wildlife; commercial shellfish harvesting where authorized; recreation; industrial water supply; and navigation."

Comments Concerning Water Quality Criteria

Aesthetics: No comments.

Dissolved oxygen (Classes AA, A, and B):

85. Comment: Federal agencies (EPA, FWS) recommended revising dissolved oxygen criteria for Class AA, A, and B surface water to better protect spawning and early life stages of cold and warm water populations of fish and other aquatic life. The FWS specifically suggested:

- for waters that support salmonids: the dissolved oxygen criteria should not be less than 7 mg/l and 75% saturation except for the period October 15 - May 15 when the 7-day mean dissolved oxygen concentration shall not be less than 9.5 mg/l and a 1-day minimum of not less than 8.0 mg/l;
- where salmonids are not present, the criteria should not be less than 6.0 mg/l and 70% saturation at all times during spawning, incubation and early life stages for warm water fish and not less than 5.0 mg/l and 60% saturation all other times; and
- daily and seasonal dissolved oxygen fluctuations above the minimum criteria should be maintained and protected to ensure that aquatic life benefit from these cyclic and periodic increases in dissolved oxygen.

Finally, it was suggested that (1) an alternative dissolved oxygen criterion for Class AA and A surface waters would be as naturally occurs and (2) a statement be added that natural seasonal and daily variations above the minimum dissolved oxygen criteria shall be maintained.

Response: With respect to changes to the dissolved oxygen criteria for Class AA and A waters, the provisions of Standard 9(A) limit the types of discharges allowed to waters of these Classes and is sufficient to insure that dissolved oxygen will be present "as naturally occurs". As noted in response to comment 53 DEP typically evaluates consistency with criteria that do not include frequency and duration components (such as dissolved oxygen) under 7Q10 low streamflow conditions. The Department believes that this approach is sufficiently rigorous to insure that aquatic life uses are fully supported in Class B surface waters. If a discharge or other regulated activity was proposed for a Class B surface water that currently or potentially could support a more sensitive community of fish or other aquatic life, these standards provide the needed flexibility in standards 10, 11, 12, 13, and 14 to insure that any "sub-category" of fisheries use will be supported. The scientific and technical evidence required by standards 12 and 13 to support the change recommended in this comment is not provided in the hearing record therefore no change will be made at this time. However, the Department appreciates these comments from the FWS and EPA and will consider this issue during the next Water Quality Standards revision process.

Sludge deposits-solid refuse-floating solids-oils and grease-scum:

86. Comment: In contrast to the criterion for Class AA, A, and B, which refers to "Sludge deposits-solid refuse-floating solids-oil and grease-scum," the criterion for Class SA and SB only refers to "Sludge deposits." Solid refuse, floating solids, oil and grease, and scum should be included for Class SA and SB. The Class B and

SB criterion should be amended to include: "...and none exceeding levels necessary to protect and maintain all designated uses.". (EPA)

Response: The recommended revisions will be made for consistency and clarity so that these sections read:

Class B:
"Sludge deposits – solid refuse – floating solids – oil and grease – scum:
None except for small amounts that may result from the discharge from a permitted waste treatment facility and none exceeding levels necessary to protect and maintain all designated uses."

Class SA:
"Sludge deposits – solid refuse – floating solids – oil and grease – scum:
None other than of natural origin."

Class SB:
"Sludge deposits – solid refuse – floating solids – oil and grease – scum:
None except for small amounts that may result for the discharge from a grease waste treatment facility providing appropriate treatment and none exceeding levels necessary to protect and maintain all designated uses."

Color:

87. Comment: Under the Class SA section of the proposed WQS, add "*origin*" after natural to the criteria for color (EPA).

Response: The change will be made so that the criteria reads:

Class SA:
"Color:
None other than of natural origin."

Suspended and settleable solids:

88. Comment: The criteria for suspended and settleable solids in Class AA, Class A, and Class SB surface waters state the following; "*None in concentrations or combinations which would impair the most sensitive designated use...*". Criteria for this parameter in Class B surface waters is that there are none in concentrations or combinations which would impair "*designated uses.*" While both approaches have the same meaning to protect all designated uses, it is suggested that consistent language be used when writing common provisions. (EPA)

Response: The recommended revision for Class B surface water will be made to improve consistency so that the criteria reads:

Class B:
Suspended and settleable solids:
"None in concentrations or combinations which would impair the most sensitive designated use; none aesthetically objectionable; none which would significantly alter the physical or chemical composition of the bottom; and none which would adversely impact aquatic organisms living in or on the bottom sediments; shall not exceed 10 mg/l over ambient concentrations."

Silt or sand deposits:

89. Comment: The criteria for silt or sand deposits for all classes of waters state that there are to be "*None other than of natural origin except as may result from normal agriculture, road maintenance..... provided all reasonable controls or Best Management Practices are used in such activities.*" The criteria for Silt and Sand Deposits should protect and maintain designated uses similar to the criteria for Suspended and Settleable Solids. At the end of the last sentence for the silt and sand deposit criteria, please include the following, ".... and all designated uses are protected and maintained." (EPA)

Response: The recommended revision will be made to clarify intent so that the Silt and sand criteria for all Classes of waters reads:

"None other than of natural origin except as may result from normal agricultural, road maintenance, construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls or Best Management Practices are used in such activities and all designated uses are protected and maintained."

90. Comment: It is not clear why there is a broad range of exceptions for this parameter. Recommend using the first part of the criteria - None other than of natural origin - and delete the remainder. The excepted activities render the criteria of little value because they rely on unenforceable best management practices. (FWS)

Response: This criteria correctly points out that some small amount of deviation from "natural conditions" is acceptable provided reasonable efforts are made to minimize the magnitude of any disturbance and designated uses are not affected. The Commissioner has broad authorities to require the abatement and prevention of pollution where it occurs. The value of the criteria is that it recognizes that for some types of activities such as road maintenance, agriculture, and some types of construction, implementing effective Best Management Practices can prevent pollution from occurring.

Turbidity:

91. Comment: The turbidity criterion for Class AA, A, and B is "Shall not exceed 5 NTU over ambient levels." The ambient condition could already be near or exceeding the level necessary to protect uses. The DEP should make the following revision: "Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses." (EPA)

Response: The recommended language, "and none exceeding levels necessary to protect and maintain all designated uses" will be added so the turbidity criteria for Class AA, A, and B surface waters reads:

> "Shall not exceed 5 NTU over ambient levels and none exceeding levels necessary to protect and maintain all designated uses. All reasonable controls or Best Management Practices are to be used to control turbidity."

92. Comment: In Class SA and SB waters, it is not clear why the exceptions for agriculture, road maintenance, construction, dredging or discharge of dredged or fill material are included for this parameter. (FWS)

Response: Agriculture, road maintenance and construction while not common sources of non-point pollution in coastal waters occasionally may cause short term turbidity plumes that need to be managed. No change will be made.

93. Comment: At the end of the last sentence for the turbidity criteria in SA and SB waters, please include the following, ".... and all designated uses are protected and maintained." (EPA)

Response: The turbidity criteria for SA and SB surface waters will be changed to read:

SA
"None other than of natural origin except as may result from normal agricultural, road maintenance, or construction activity, dredging activity or discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses."

SB
None other than of natural origin except as may result form normal agricultural, road maintenance, or construction activity, or discharge from a waste treatment facility providing appropriate treatment, dredging activity of discharge of dredged or fill materials provided all reasonable controls and Best Management Practices are used to control turbidity and none exceeding levels necessary to protect and maintain all designated uses."

Indicator Bacteria (includes comments regarding Appendix B):

94. Comment: DEP is commended for proposing to incorporate EPA's recommended *Ambient Water Quality Criteria for Bacteria - 1986* into its Water Quality Standards. The recommended 1986 bacteria criteria represent the best available science, and serve as a defensible foundation for protecting public health in recreational waters. (EPA)

Response: The Department has proposed adoption of criteria based on EPA's 1986 guidance as a necessary first step in developing a meaningful criteria to protect recreational uses based on indicator bacteria densities. A number of significant advances have been made since EPA drafted this guidance in 1986 that are relevant to this issue that are currently being evaluated by Department staff. Accordingly, the Department will likely propose additional modifications to the criteria in the next cycle of water quality standard revisions.

95. Comment: The narrative descriptions appended to the 1997 version of the Water Quality Standards were informative and useful. (RBT)

Response: While the 1997 Appendix was arguably more informative than the proposed revision, part of the narrative will be deleted because it addressed the need to transition to more scientifically defensible indicator bacteria (i.e. enterococci and *Escherichia coli*). With the adoption of these 2001 indicator

bacteria revisions, this transition will be completed. Part of the narrative text attempted to explain the use of fecal coliform bacteria by the Connecticut Department of Agriculture, Division of Aquaculture, that while informative, goes beyond the needs of these Water Quality Standards.

96. Comment: In Appendix B under the column for Designated Uses, Freshwater/Contact Recreation and the associated column for Class, there is no AA designation. Is it correct that there are no designated swimming areas in Class AA waters? (EPA)

Response: The comment points out an unintended omission. "Class AA" will be added opposite "Freshwater/Contact Recreation" (under the "Class" column).

97. Comment: In Appendix B, the criteria for Freshwater "Contact Recreation Designated Swimming" includes a geometric mean for E. coli of less than 126/100ml, consistent with EPA's guidance. However, the geometric mean criterion does not appear for Freshwater "Non-Designated Swimming" and Freshwater "All Other Contact Uses." It is not clear if the geometric mean criterion is intended to apply only to designated swimming areas or if the criterion is intended to apply to all fresh waters designated for primary contact recreation (i.e., all Class AA, A, and B waters). It is necessary for DEP to clarify this as both the geometric mean and the single sample criteria are necessary for waters designated for primary contact recreation. (EPA)

Response: This comment raises two issues. The first concerns the designated uses for Class AA, A and B waters. The designated use assigned to these Classes of surface waters in Connecticut's Water Quality Standards is "recreation". The term "contact recreation" was introduced with no explanation in Appendix B leading to confusion regarding which criteria apply. Appendix B will therefore be edited to eliminate the use of the term "contact recreation" and the specific uses that may be considered recreational use and the appropriate criteria to support each use identified in the table.

The following changes will be made to Appendix B:

Under the major heading "Freshwater"

1) The sub-heading "Contact Recreation" will be changed to "Recreation"
2) The heading "All Other Contact Uses" will be changed to "All Other Recreational Uses"

The second issue relates to the applicability of the geometric mean criterion to specific uses. The inclusion of the geometric mean criterion for recreational uses not associated with designated swimming areas frequented by large numbers of bathers is not well supported by EPA's indicator bacteria research and technical support for criteria derivation. As a practical matter, sufficient data to calculate a meaningful geometric mean is rarely available for areas outside of designated bathing areas where monitoring is performed to support beach closure decisions. Further, there exist many surface water resources where physical limitations preclude recreational activities that involve full body immersion. However, despite these limitations regarding use and application of the criteria, Connecticut's Water Quality Standards have for many years included a broadly applied geometric mean criterion and it will remain applicable to all water designated for recreation.

The following changes will be made to Appendix B:

1) The criteria "geometric mean less than 126 E.coli/100ml" will be added in the column headed "Criteria" as applicable to both "Non-designated Swimming" and "All Other Recreational Uses".
2) The paragraph headed "Guidelines for Use of Indicator Bacteria appearing at the bottom of Appendix B will be modified by insertion of the following text immediately after the first sentence:

> "Relevant information includes but is not limited to federal guidance concerning the scientific basis for deriving the criteria and the potential health risks associated with excursions above the criteria, recommended implementation procedures, and the results of sanitary surveys or other investigations into sources of indicator bacteria in the watershed."

98. Comment: In Appendix B, the criteria for Saltwater "Contact Recreation Designated Swimming" includes a geometric mean for enterococci of less than 35/100ml, consistent with EPA's guidance. However, the geometric mean criterion does not appear for Saltwater "Contact Recreation All Other Contact Uses." It is not clear if the geometric mean criterion is intended to apply only to designated swimming areas or if the criterion is intended to apply to all salt waters designated for primary contact recreation (i.e., all Class SA and SB waters). The geometric mean and the single sample criterion are necessary for waters designated for primary contact recreation. (EPA)

Response: As indicated in the response to Comment 97 above, the following changes will be made to clarify the Department's practice:

Under the major heading "Saltwater"

1) The sub-heading "Contact Recreation" will be changed to "Recreation"
2) The heading "All Other Contact Uses" will be changed to "All Other Recreational Uses"
3) The words "geometric mean less than 35 Enterococci/100ml" will be added to the "Criteria" column under "All other Contact Uses".

99. Comment: In the Table Notes for Appendix B: does note (1) mean that the criteria appies in the ambient water at the drinking water supply intake structure? (EPA)

Response: Yes. The criteria applies only at the intake structure. Table note (1) will be changed to read:

> "Criteria applies only at the drinking water supply intake structure."

100. Comment: In the Table Notes for Appendix B: does note (2) mean that the designated drinking water supply use can be considered to be met even if the ambient criterion to protect water supplies is not met, because of the treatment applied prior to consumption? (EPA)

Response: Note (2) was meant to convey that the *drinking water designated use* is typically achieved, regardless of ambient surface water indicator bacteria levels, because of the required water treatment facilities, including disinfection. However,

Table Note (2) as written is misleading and will be deleted and the remainder of the Table Notes renumbered accordingly as the Class AA indicator bacteria criteria have no meaning or application relative to the quality of treated public water supply within a water supply distribution system. The quality of such water is governed by federal and State regulations established per requirements of the federal Safe Drinking Water Act.

101. Comment: Note (3) in Appendix B and Standard 23 should be made consistent with one another. Standard 23.B indicates that the normal period when disinfection is required is "May 1 to October 1", implying that the criteria are applicable during that period, at least, versus "April 1 – November" at note (3). Standard 23.B also indicates that an alternative schedule may be required in a given case if it is found to be necessary to protect uses. Finally, though the distinction may be insignificant, Standard 23.C implies that the criteria for bacteria are applicable at all times, with a recognition that they may not be met when disinfection of sewage treatment plant effluent is not required, versus note (3) which indicates that the criteria do not apply except when disinfection is required (the distinction could be significant if there are cases where disinfection is not required due to aquatic life concerns, but BMPs to control other sources of bacteria are to be maintained). Clarification may be best achieved by revising note (3) to be a reference to Standard 23 only. (EPA)

Response: Note (3) will be changed to clarify that indicator bacteria criteria do not apply during the period October 1 to May 1 in those Class B surface waters subject to the seasonal disinfection allowance in Standard 23 as follows:

(3) "Criteria for the protection of recreation uses in Class B waters do not apply when disinfection of sewage treatment plant effluents is not required consistent with Standard 23."

Standard 23 (C) will be revised to read:

(C) For those Class B surface waters located north of Interstate Highway 95 (I-95) and downstream of a sewage treatment plant providing seasonal disinfection as authorized by the Commissioner, criteria for indicator bacteria do not apply during periods when disinfection is not required."

102. Comment: Regarding Note (6) in Appendix B, the DEP is encouraged to designate as bathing areas waters used regularly for bathing, such as "local swimming holes," that are not otherwise overseen by the state or local authorities. Is this done? (EPA)

Response: The *Ambient Water Quality Criteria for Bacteria – 1986*, recommends a range of criteria based on factors such as the frequency of use, the presence of large numbers of bathers and potential sources of sewage. The research associated with development of the EPA criteria document supports the use of the different indicator bacteria criteria (single sample maximum) for "local swimming holes" which are not used as intensely as public beaches. No change will be made.

103. Comment: Regarding the Appendix B inclusion of "Anti-degradation Policy requirements...", the statement for Class B waters should also reference Standard 23. (EPA)

Response: The referenced text was included for informational purposes and will be deleted here since it is more completely and appropriately described in the Connecticut Anti-degradation Implementation Policy (Appendix A).

Taste and odor: no comments

pH:

104. Comment: EPA's pH criteria recommendation to protect marine aquatic life includes a notation that the pH not be more that 0.2 units outside of the normally occurring range (Quality Criteria for Water, July 1986). This notation should be added to Connecticut's pH criterion of 6.8 - 8.5 for marine waters. (EPA)

Response: The utility of this change is questionable since the "normally occurring range" has not been established for any specific locations within Connecticut's marine waters. Further, the time frame over which the range is to be calculated is unclear and would lead to confusion regarding how consistency with this criterion would be judged. No change will be made.

Allowable temperature increase:

105. Comment: Several federal agency comments were submitted concerning how the temperature criteria for Classes AA, A, and B are implemented to ensure protection of cold water aquatic communities. (EPA) A suggestion was also made to revise the criterion by adding the phrase, "-- and in no case exceed a maximum upper limit of 68 degrees F in waters where cold water species of fish and invertebrates occur or 85 degrees F in all other waters. The rise in temperature measured at the edge of a mixing zone shall not exceed 3 degrees where cold water species occur or 4 degrees F in all other waters." (FWS)

Response: Decisions regarding activities that may affect temperature are made on a case-by-case basis following review of environmental factors at the activity location and adjacent surface water. If a surface water is suitable to support a cold water fishery, the "fish and wildlife habitat" designated use means habitat that would support a cold water fishery. Regulatory decisions made by the Department, such as the issuance of wastewater discharge permits and federal Clean Water Act Section 401 water quality certificates, consider environmental factors and provide for public participation where dialogue concerning existing or designated use provisions can be addressed. No change will be made.

The recommendation to add specific language and limitations regarding protection of cold water fisheries has some merit, but the suggested text is overly prescriptive. Many waters naturally support "cold water" species only during a portion of the year or exhibit characteristics that are intermediate between "cold" and "warm" water habitats. The existing criteria allows the Department to make detailed assessments on a case-by-case basis to insure that aquatic life uses are adequately protected based on the specific ecological characteristics of the resource. No change will be made.

106. Comment: Clarify the statements for Class B, SA, and SB waters: "None, except where the [temperature] increase will not exceed the recommended limit for the designated uses (or "the most sensitive designated use," depending on the

use class)." How does one know what the "recommended limits" are? Does "recommended limit" refer to ambient criteria necessary to protect a given use, or limits on sources of temperature? (EPA)

Response: The comment appropriately notes the ambiguous meaning of the phrase, "recommended limit for the designated uses". This ambiguity will be eliminated within the allowable temperature criteria for all classes of surface water. The criteria will be revised to read:

Classes AA, A and B. Allowable temperature increase:
"There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 85 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F."

Class SA and SB. Allowable temperature increase:
"There shall be no changes from natural conditions that would impair any existing or designated uses assigned to this Class and, in no case exceed 83 degrees F, or in any case raise the temperature of the receiving water more than 4 degrees F. During the period including July, August and September, the temperature of the receiving water shall not be raised more than 1.5 degrees F unless it can be shown that spawning and growth of indigenous organisms will not be significantly affected."

Chemical Constituents:

107. Comment: Standard 19 should be referenced in the Chemical Constituents criterion. (EPA)

Response: A reference to this Standard would help to understand this criteria and will be added to the Chemical Constituents criterion for all Classes of surface waters.

Chemical Constituents (comments related to Appendix D):

108. Comment: There are numerous revisions proposed to the numeric criteria for toxic pollutants in Appendix D, "Numerical Water Quality Criteria for Chemical Constituents." It is understood that the proposed revisions are intended to maintain consistency with EPA's current 304(a) ambient water quality criteria guidance, the most recent summary being presented in the December 10, 1998, federal register notice, 63 FR 68354 (with corrections of April 1999). Has the Department proposed any criteria that are intended to differ from EPA's recommendations? Justification would be required for any criteria that DEP intends to adopt that are less stringent than EPA's recommendations. (EPA)

Response: The proposed revisions to the criteria in Appendix D are based in large part on Federal Section 304(a) guidance. Where the criteria proposals deviate from this guidance, other EPA guidance documents have been used and are justified where necessary in the responses to comments below.

109. Comment: To be consistent with EPA 304(a) guidance, the criteria for the three priority pollutants (Benzo(a)Anthracene, Benzo(b)Fluoranthene, and Benzo(k)Fluoranthene) should be changed to the following human health criteria

numbers: change 0.49 to 0.049 in the Organisms Only column, and 0.044 to 0.0044 in the Water and Organisms column. (EPA)

Response: Water quality criteria for compounds classified as polycyclic aromatic hydrocarbons (PAHs) were updated using the current cancer slope factor for benzo(a)pyrene, a typical PAH, obtained from EPA's IRIS database and the relative potency factors developed by the Agency for Toxic Substances and Disease Registry (ATSDR). The potency factors modify the toxicity value of benzo(a)pyrene to reflect the relative toxicity of the other PAH compounds. The criteria listed in the Department's proposal for benzo(a)anthracene, benzo(b)fluoranthene and benzo(k)fluoranthene were developed consistent with this methodology.

This methodology is consistent with current risk assessment practices and is consistent with the derivation of risk based criteria for PAHs contained in Connecticut's Remediation Standard Regulations. EPA's 304(a) criteria guidance for PAHs assume that all PAHs are equal in toxicity to benzo(a)pyrene, one of the most toxic compounds in this class of chemicals. This assumption is incorrect. Most of the other compounds are less toxic than benzo(a)pyrene. The potency factors developed by ATSDR quantify the relative toxicity of these compounds with respect to benzo(a)pyrene. Based on these relationships, toxicity factors for the other PAHs can be extrapolated and then used in criteria derivation or other risk based evaluations. No change will be made.

110. Comment: While EPA does not have criteria recommendations for Benzo(ghi)Perylene, DEP may adopt criteria if it desires. If DEP adopts criteria for this chemical, consistency with the criteria for the three chemicals listed above is suggested. (EPA)

Response: The criteria proposed for benzo(g,h,i) perylene were derived using the cancer slope factor for benzo(a)pyrene and the relative potency factors derived by ATSDR (see also response to Comment 109 above). No change will be made.

111. Comment: To be consistent with EPA guidance, EPA recommends the criteria for Chrysene be changed for the following human health criteria numbers: please change 4.92 to 0.049 in the Organisms Only column, and 0.44 to 0.0044 in the Water and Organisms column. (EPA)

Response: The criteria proposed for chrysene was derived using the cancer slope factor for benzo(a)pyrene and the relative potency factors derived by ATSDR. (see also response to Comment 109 above). No change will be made.

112. Comment: DEP has stated in Appendix D that metals criteria are dissolved objectives. Therefore a metals translator is necessary to properly establish total recoverable metals limits in permits. Several states have adopted default translator methodologies (Texas and Georgia) based upon the recommendations contained in EPA's 1995 Metals Translator Guidance Document. DEP's current method of assuming a translator of 1 results in permit limits that are clearly more restrictive than necessary. DEP should adopt EPA's 1995 Translator Guidance as the basis for setting appropriate translators where site-specific metals data are otherwise unavailable. (CWPAA)

Response: This comment relates to the Department's wastewater discharge permitting regulations that are outside the scope of these Water Quality Standards. However, the following is offered to explain further. The metals criteria are established for the dissolved fraction of total metals (see Table note 5, Appendix D). Dissolved metals are more difficult and expensive to monitor in ambient water than total metals and therefore "translator methods" have been developed to translate the likely concentration of the dissolved form when total metals are monitored. The Department has and will continue to use translator methodologies to help determine appropriate wastewater discharge permit limits when and where sufficient ambient water quality information is available to support their use. It has been Department practice to require direct measurement of total and dissolved metals in receiving waters both above and below a point source discharge where use of a translator has been proposed. The Department does not recommend development of default translator methodologies in the absence of site-specific data because of the environmental variability of different surface waters in Connecticut and the increased uncertainty regarding the level of protection default translators would provide.

113. Comment: An area where DEP has historically differed somewhat from EPA guidance is in cases where the national criteria recommendations for aquatic life protection are a function of factors such as hardness (certain metals) or pH, temperature, and salinity (ammonia, salinity for saltwater ammonia only). DEP has generally simplified the criteria by limiting them to the conditions at which they are most frequently applied for Connecticut's waters. EPA seeks to ensure that where conditions are outside of the range covered by DEP's printed criteria, adjustments will be made as necessary to ensure protection of aquatic life. (EPA)

Response: Water quality criteria based on EPA guidance incorporate a significant margin of safety. This margin of safety is sufficiently large to insure that criteria are protective of aquatic life across the range of environmental conditions observed in Connecticut surface waters, particularly for the heavy metals. Department investigations involving a geographically diverse sample of surface waters in Connecticut have documented that all surface waters tested to date have significantly greater capacity to assimilate metal toxicity than would be predicted based on EPA guidance criteria (adjusted to a hardness of 50 mg/l). The criteria proposed incorporate a sufficiently large margin of safety to insure that they are protective of aquatic life in all Connecticut surface waters including those having a hardness below 50 mg/l. In the event sufficient monitoring data for a surface water body demonstrates that more (or less) restrictive criteria are justified, the provisions of Standard 12 may be employed to develop site-specific criteria. No change will be made.

114. Comment: The metals standards appearing in Appendix D are based upon EPA criteria which are hardness dependent. The current criteria are not hardness dependent but assume that a hardness of 50 mg/l is present. This may over or under regulate specific discharges. DEP previously stated that a hardness adjustment would be allowed where site-specific information confirmed that a different hardness would occur under low flow conditions. However, each time a municipal entity has requested use of a site-specific hardness, the DEP has prevented use of that information. This is not acceptable. Therefore, to correct this situation, DEP must adopt a provision in the rules that specifically allows a hardness adjustment to be used where supported by site-specific data. (CWPAA)

Response: As a practical matter, site-specific criteria for metals have been proposed and approved by EPA for more stream miles in Connecticut than elsewhere throughout the northeast (and perhaps the country). Further, the Department is unaware of any instance where a regulated facility has demonstrated that the natural receiving water hardness (absent the influence of pollutant discharges) is consistently greater than 50 mg/l. Criteria must be protective of aquatic life under a wide range of stream flows, not just under "low flow" conditions. See also response to Comment 117 above. No change will be made.

Chemical Constituents (comments related to exposure):

115. Comment: As noted in EPA's various WQS guidance documents, WQS must set an appropriate magnitude, duration and frequency of exposure to ensure that use protection occurs and that the criteria are applied as intended. Thus, long term average criteria should be applied to long term exposure conditions and short term criteria should be applied to short term events. Historically, the state has used the critical low flow as the means for ensuring that the proper duration and frequency of exposure was used in applying standards (e.g., 7 day once in ten year low flow). Unfortunately, many of the Department's implementation procedures are decades old, do not reflect the proper application of water quality standards and are plainly inconsistent with the underlying scientific information used to develop the standards. (CWPAA)

Response: The comment incorrectly implies all water quality criteria are applied in regulatory programs using low stream flow conditions defined by 7Q10 low flow, thereby implying the Department ignores the science that helped to craft EPA criteria guidance documents. The implementation procedures referred to in this comment are contained in the Water Discharge Permit Regulations (Sec 22a-420-3 and 22a-420-4). The criteria proposed for adoption into Connecticut's Water Quality Standards include magnitude, duration, and frequency of exposure components as recommended in federal guidance and are being applied in a manner that insures that in-stream water quality is protected. No change will be made.

116. Comment: The proposed revisions still contain the outdated assumption of 6.5 grams per day of fish consumption. It is generally recognized this is an underestimation of fish consumption. The assumption was derived by EPA many years ago based upon national average estimates, including people who do and do not eat fish. The underestimation of fish consumption leads to standards that do not adequately protect families that consume locally caught fish, given their higher rate of fish consumption. In EPA's 1999 document, "Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 2: Risk Assessment and Fish Consumption Limits", fish consumption surveys are presented across the country. The average consumption of locally caught fish by families was 25.1g/day, which is consistent with an estimate of locally caught fish in Connecticut developed by DPH from an informal survey conducted several years ago. The upper 90^{th} percentile of local fish consumption in the EPA reviewed studies was 81 grams/day. Therefore segments of the population (e.g. sport fishing families and subsistence fishing populations) may be exceeding the Connecticut Water Quality Standards default assumption by more than 10 fold. It is important for DEP to re-evaluate the fish consumption assumption to make sure they are protective of public health. DPH can help assist DEP in the refinement of this standards methodology. (DPH)

Response: The Department agrees the fish consumption assumption should be re-evaluated and is currently working with the authors of a State-funded study that evaluated Connecticut-specific rates of fish consumption. This data is currently being re-formatted to allow CT DEP to better analyze the results. When this data is provided to DEP, Connecticut-specific fish consumption rates will be re-considered as part of the criteria revisions to be proposed during the next Water Quality Standards revision proceedings. The DPH offer of assistance is appreciated and will be pursued when the study data is reformatted. However, no change will be made at this time.

117. Comment: The proposed rule adjusts numerous human health objectives to reflect the latest scientific information on fish and water consumption. All of the human health criteria are premised on long term exposures varying from 30 days for "threshold" toxicants to 70 years for "carcinogens." EPA states that the proper flow under which to apply the criteria is the 30-day, low flow occurring once every 5 years on average (30Q5) for threshold toxicants and harmonic mean flow for compounds classed as carcinogens. DEP's rules apply the human health criteria at the seven-day, low flow that occurs once every ten years on average (7Q10), which is plainly inconsistent with the science underlying the development of the human health criteria. The rule should be amended to apply the criteria under the relevant stream flows consistent with federal recommendations. (CWPAA)

Response: The argument that Department rules result in the application of human health criteria at 7Q10 low flows is not correct. Application of criteria to protect human health in the Department's regulatory programs is fundamentally an exercise in risk management. It has been the Department's practice to require reasonable controls where application of proven technology will result in a decrease in risk. Standard 10 provides the necessary flexibility to allow for allocation of zones of influence based on site-specific consideration of receiving stream and effluent characteristics, including consideration of higher stream flow (in excess of the 7Q10 flow) where appropriate. No change will be made.

118. Comment: DEP is proposing to establish more restrictive human health criteria, the basis of which is unclear. EPA is in the process of revising its arsenic human health risk analysis. It appears that a tapwater value in the range of 5 -10 ug/l will be set. Therefore, setting a surface water criteria 250 to 500 times more restrictive than the acceptable drinking water level is inappropriate and unnecessary. In essence this regulates drinking effluent more restrictively than drinking tapwater, a nonsensical result. The Department should apply the SDWA criteria to develop appropriate arsenic limitations under the Clean Water Act. (CWPAA)

Response: Some pollutants, such as arsenic, bioaccumulate in fish tissue to levels much higher than found in the water in which the fish live. In order to protect people that consume fish caught in Connecticut waters, the human health criteria must be sufficiently low to avoid fish tissue contamination to levels where the fish are no longer safe to eat. If a person both drinks the water and eats the fish from a Class AA surface water, human consumption of a bioaccumulating pollutant, such as arsenic, increases, ergo the "water and organism" consumption criteria must decrease to protect public health because such pollutants bioaccumulate in people as well as fish. No change will be made.

Chemical Constituents (comments related to copper criteria):

119. Comment: Based on the April 7, 2000 DEP memo (Exhibit 7) the statewide site-specific freshwater copper criteria previously adopted in 1997 (except where other site-specific criteria are specified), is meant to be maintained, as opposed to the proposed revisions. (EPA)

Response: The Department intends to maintain the state-wide site-specific freshwater dissolved copper criteria that was previously adopted by the Department and approved by EPA. Accordingly, the acute criteria for copper in freshwater water resources (except where other site-specific copper criteria are specified) will not be revised and will remain 14.3 ug/l.

120. Comment: The site-specific copper criterion in Appendix D was developed and adopted several years ago using a water effect ratio of 2.92. Now that the generic copper criterion has been adjusted downward, does the 2.92 WER get applied to the new generic or the old generic (1996) acute and chronic values for copper? (FWS)

Response: As addressed in the response to Comment 119 above, the Department erred in suggesting a change to the previously approved site-specific copper criteria.

121. Comment: The footnote to the copper criteria in Appendix D states that the acute criteria may be exceeded no more than 5% of the time in a year and the chronic criteria may be exceeded no more than 50% of the time. These exceedance frequencies are much less restrictive than "once in three years" or that related to the 7/Q/10 flow that is used to apply the criteria. To ensure that the copper criteria are properly applied, DEP must clarify that a flow related to the specific exceedance frequency for copper will be developed for calculating appropriate effluent limits. (CWPAA)

Response: 7Q10 low flow is the minimum flow for which these Water Quality Standards apply, not the only flow. Consistency with these copper criteria is evaluated by examining surface water quality monitoring data collected across the range of annual flow conditions. The Department's practice for deriving effluent limitations uses statistical procedures designed to insure that copper concentrations at the edge of any zone of influence allocated pursuant to Standard 10, do not exceed the chronic criteria on more than 50% of the days in a year and do not exceed the acute criteria on more than 5% of the days. The Department is confident these procedures, which EPA previously approved, provide an equivalent level of protection to that sought by the EPA guidance. No change will be made.

122. Comment: The statewide acute and chronic copper criteria listed for freshwater are different than the current national criteria. However, the national criteria are listed for a hardness value of 100 mg/l, whereas no hardness value is listed in Appendix D. In addition, the national criteria allow for specified excursions above acute and chronic values during a three year period. Footnotes (6) and (7) for copper provide for a much greater excursion frequency above the national acute and chronic excursion values. Due to the lack of background data from which the Connecticut criteria and excursion frequencies were derived, it is

not possible to compare these criteria to the national criteria. This data should be provided. (FWS)

Response: The statewide site specific copper criteria were derived by means of statistical evaluations of ambient dissolved copper concentrations at sites where biological monitoring documents a high degree of biological integrity. Ambient copper criteria were developed at these sites by calculating the median and 95th percentile concentration of monthly sample results obtained over roughly a three year period. The basis for these criteria therefore differs from EPA guidance that recommended criteria based on the results of laboratory toxicity tests on single organisms under highly controlled conditions. Direct comparison of the "Connecticut criteria" with EPA guidance is difficult because the Connecticut criteria represent field documented "safe levels" versus extrapolated EPA laboratory toxicity testing data. Development of these site specific criteria were encouraged by EPA and then approved by EPA during prior Water Quality Standards revisions. Extensive documentation in support of these criteria is available for inspection at both the Department and in EPA Region I. The Department is confident the copper criteria, which EPA previously approved, provides the same level of protection sought by the EPA guidance and therefore no change will be made.

123. Comment: The copper criteria for the Pequabuck River should be increased on the basis of measured hardness above and below the Bristol POTW during draught flow conditions in August and September, 1999. The existing criteria are based on a hardness of 50 mg/l whereas measured hardness during the draught was higher. The comment letter included a summary of the water quality data and a copy of a technical journal article written by John C. Hall and Charles T. Simmons. (Bristol)

Response: The data submitted in support of the City of Bristol's criteria modification request for the Pequabuck River has been reviewed by the Department and found deficient with respect to the scientific and technical evidence necessary to demonstrate consistency with the requirements specified in Standard 12. Adoption of a site-specific criteria that varies with in-stream hardness will require substantially greater monitoring and data analyses than has been provided. The Department's review of water hardness data collected monthly by the U.S. Geological Survey over the period 1996-1998 indicated that the average annual hardness downstream of the Bristol POTW was 55 mg/l with approximately half of the samples exhibiting a hardness of less than 50 mg/l. Stream hardness at this location is likely elevated as a result of the Bristol POTW and Plymouth sewage treatment plant discharges upstream. The hardness which would exist in the absence of these treated wastewater discharges and upon which a hardness adjustment to the criteria would be made can be presumed to be lower than that indicated by the data for the river downstream of the sewage treatment plant discharges. The Department previously adopted site-specific criteria for the Pequabuck River as part of the 1997 Water Quality Standards revisions based on an EPA recommended protocol. Further modification to the criteria is not warranted at this time and no change will be made.

Chemical Constituents (comments related to ammonia criteria):

124. Comment: A number of comments were submitted recommending revision of the ammonia criteria appearing in Appendix D to reflect amended EPA ammonia criteria recommendations (1999 Update of Ambient Water Quality

Criteria for Ammonia, EPA-822-R-99-014, dated December 1999). This guidance differs significantly from EPA's previous ammonia criteria recommendations (published in 1984) on which the Department's criteria are generally based. (EPA, FWS, CWPAA).

Response: Table Note 9 of Appendix D will be revised to incorporate the updated EPA ammonia criteria guidance. This will be accomplished by adding the EPA formulas for calculating the revised ammonia criteria and deleting the existing acute and chronic toxicity table. Ammonia criteria can then be calculated on a site-specific basis for water quality assessment and regulatory purposes. Table Note 9 will be revised to read:

9. "Criteria for ammonia, (mg/l as N) vary in response to ambient surface water temperature (T, degrees C) and pH. Biological integrity is considered impaired when:

a. The one-hour average concentration of total ammonia exceeds:

$[0.275 / 1+10^{(7.204-pH)}] + [39.0 / 1+10^{(7.204-pH)}]$ when salmonids are present

or

$[0.411 / 1 + 10^{(7.204 - pH)}] + [58.4 / 1+ 10^{(pH-7.204)}]$ when salmonids are absent

b. The four-day average concentration of total ammonia exceeds 2.5 times the value obtained from the formula in 9.c. below.

c. The 30-day average concentration of total ammonia exceeds:

$[0.0577 / 1 + 10^{7.688 - pH}] + [2.487 / 1 + 10^{pH - 7.688}] \times [MIN (2.85, 1.45 (10^{0.028 (25 - T)}))]$ when early life stages are present,

or

$[0.0577 / 1 + 10^{7.688 - pH}] + [2.487 / 1 + 10^{ph - 7.688}] \times [1.45 (10^{0.028 . (25 - MAX(T, 7))})]$ when early life stages are absent."

125. Comment: The acute and chronic ammonia criteria for saltwater are only listed for a pH of 8.0. Table 9 does not mention that the national ammonia criteria varies with both temperature and pH. (FWS)

Response: DEP previously published the criteria value for saltwater ammonia at a pH of 8.0 because saltwater is strongly buffered to a pH of approximately 8 SU. The ammonia criteria will be revised to reflect the most recent EPA ammonia criteria guidance by revising Table Note 10 as follows:

"Saltwater Ammonia criteria expressed as un-ionized ammonia (NH_3). Equivalent total ammonia concentrations are dependent on receiving water temperature, pH, and salinity. Conversion of un-ionized ammonia concentrations to total ammonia ($NH_3 + NH_4^+$) may be performed using the procedure described in "Ambient Water Quality Criteria for Ammonia (Saltwater) – 1989", EPA 440/5-88-004."

126. Comment: EPA now recommends that the chronic ammonia criteria be applied at 30/Q/10 or 30/Q/5 flows and that less restrictive criteria apply when

warm water fish are not spawning (generally November through March in Connecticut). (CWPAA)

Response: The chronic ammonia criteria, as modified in response to Comment 124 above, includes both frequency and duration components as recommended in the most recent EPA ammonia criteria guidance. The specific streamflow conditions used for water quality modeling to calculate permit limits for ammonia will be determined on a case-by-case basis to insure that these components of the criteria are accounted for.

127. Comment: The criterion for benthic invertebrates for Class AA and A includes the statement: "Presence and productivity of aquatic species is not limited except by natural conditions, permitted flow regulation or irreversible cultural impacts." The statement for Class AA waters also references "culverting a surface water" as an example of an irreversible cultural impact. As noted in other comments, deference to natural conditions (defined as conditions absent human influence) is acceptable. However, it would be best to remove the reference to limits on the benthic community due to human activities because it confuses the picture of what the goal for the benthic community really is. At a minimum, natural effects and human effects should be separated, and the statement concerning human impacts should be limited by the addition of language ensuring that all designated uses are protected and maintained. A shortcoming of the second option is that the value that a biological criterion can have towards defining the designated uses of "fish and wildlife habitat" is lost. (EPA)

Response: It is not always possible to separate "natural" effects and "human" effects. While "culverting a surface water" may in some instances be a necessary activity, it is not an appropriate example of an irreversible cultural impact. Therefore words "such as culverting a surface water" will be deleted.

128. Comment: The Class AA and A benthic invertebrates criterion should be modified to eliminate exceptions and unnecessary subjective language as follows: "A wide variety of macroinvertebrate taxa are present, all structural and functional groups are well represented. Presence and productivity of aquatic species is as naturally occurs. Water quality and quantity shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. Taxa within the orders Plecoptera (stoneflies), Ephemeroptera (mayflies), Coleoptera (beetles), and Trichoptera (caddisflies) dominate the macroinvertebrate community in riffle and other hard bottom habitats of these waters." (FWS)

Response: Interpretation of benthic invertebrate criteria requires the application of judgment in making a determination regarding consistency with the criteria. While this criteria has been improved by removing "such as culverting a surface water" (see response to Comment 127 above), the Department believes that it remains necessary to inform the public that certain types of activities may influence the distribution and abundance of aquatic species and not adversely impact the surface water's uses. No change will be made.

129. Comment: In Class B waters the benthic invertebrate criteria require that all functional feeding groups shall be present. However, the language is much less specific about maintaining taxonomic groups since it allows for one or more to be disproportionate in abundance. Likewise, the criteria allows for the pollution intolerant taxa to be diminished by some unspecified degree as a consequence of

cultural factors. Does this mean that intolerant species, genera or orders can be eliminated from a section of waters due to a discharge or other activity and the water would still meet Class B criteria and standards? It is recommended that the following sentence be inserted on line 10 of this criteria as follows: *"No taxa present in waters upstream from a discharge or activity may be eliminated from suitable physical habitat in these waters located downstream from such discharge or activity."* (FWS)

Response: Benthic invertebrate communities and species composition change from the upper reaches of a stream to the lower reaches due to many factors, some natural and others culturally related. Most Class B waters are influenced by multiple discharges and non-point sources. Some impaired streams do not have healthy upstream benthic invertebrate communities. The Class B benthic invertebrate criteria acknowledge that minor changes to the aquatic biological community may occur. The criteria also specify that water quality must be sufficient to sustain a diverse macroinvertebrate community of indigenous species (i.e. suitable habitat conditions and healthy aquatic community). Determining whether any changes in community structure represents an excursion beyond that allowed by the criterion is a matter of judgment, however, restoring benthic invertebrate communities to the extent practical is a stated objective and the criteria will not be modified.

130. Comment: It is not clear how the lake trophic classifications and the surface water classifications of Class AA, A, and B are related. Please clarify how the parameters and associated criteria for the lake trophic classifications are used as an assessment tool versus a designation of goals for a given Class AA, A, or B water. (EPA)

Response: The Lake Trophic Classifications provide a range of water quality conditions for Total Phosphorus, Total Nitrogen, Chlorophyll-a, and Secchi Disk Transparency related to the degree of biological productivity. The ranges apply to all Connecticut lakes and ponds that meet the minimum Clean Water Act designated use goals established in the Standards (AA, A, B). Trophic status is not a determining factor in establishing the Water Quality Classification. Trophic classification does have relevance regarding the types of recreational use that may be supported in an individual lake or pond. For example, a highly eutrophic lake is not expected to support recreational swimming use to the same degree as an oligotrophic lake due to the presence of extensive macrophyte beds and dense algae blooms. This relationship holds true regardless of whether the Lake is Class AA, A, or B.

Lakes have natural tendencies towards a specific trophic category, independent of any cultural impacts. The specific range of water quality that indicates consistency with the Water Quality Standards for an individual water body depends on the natural trophic category of that water body, not the Water Quality Classification. Assessment of whether or not a lake meets water quality standards therefore is based on whether the current trophic condition is unduly altered by cultural factors or is a natural phenomenon. As an example, a eutrophic lake where swimming use is limited by cultural factors would be considered as "not supporting recreational uses" while a lake where swimming is limited due to natural eutrophiciation would be considered "fully supporting recreational uses".

The trophic classification system provides additional specificity in recreational use designation and establishes criteria consistent with four generally accepted categories of trophic condition – oligotrophic, mesotrophic, eutrophic, and highly

eutrophic. In order to clarify the relationship between Water Quality Classifications and trophic classification, the section heading "Lake Trophic Classifications" will be changed to "Lake Trophic Categories" to discourage association of the water quality classification (AA, A, B) with the trophic classification (Oligotrophic, mesotrophic, eutrophic, highly eutrophic). Further the following text will be inserted following the section heading to assist in interpretation:

"Criteria for Total Phosphorus, Total Nitrogen, Chlorophyll-a, and Secci Disk Transparency appearing in the table below represent acceptable ranges for these parameters within which recreational uses will be fully supported and maintained for lakes in each trophic category. For the purpose of determining consistency with the water quality standards for lakes Classified AA, A or B, an assessment of the natural trophic category of the lake, absent significant cultural impacts, must be performed to determine which criteria apply."

131. Comment: Concerning the Lake Trophic Classifications, delete the word "nuisance" where it appears as a descriptor for macrophyte beds and algae blooms. The criteria listed under each trophic category and the terms in the narrative sections such as intermittent, dense, frequent, etc. convey an adequate description without imparting a negative connotation. Many of these descriptions could also be applied to submergent and emergent wetland systems along the margins or in sections of lakes. (FWS)

Response: Use of the word "nuisance" as a descriptor for macrophytes and certain algae blooms that impair some forms of recreational use is common practice among lake managers, shoreline residents, and individuals who recreate in and on these lake resources. However, the word "nuisance" conveys a negative connotation to aquatic plant growth that may be normal and expected in lakes and ponds that are naturally euthrophic. Therefore the word "nuisance" will be deleted from the trophic category descriptions.

132. Comment: Clarify the differences between Class C and D, and the differences between Class SC and SD. Some of the distinguishing terminology seems to be used inconsistently, both within the freshwater classifications and between those for freshwater and saltwater. (EPA)

Response: The difference between Class C (SC) and Class D (SD) waters is explained in the text that follows the Class heading. The principal differences relate to whether designated uses may be restored through management of point and non-point sources of pollution (Class C and SC) or whether the cause of impairment is not readily correctable under existing water pollution control programs (Class D and SD). A distinction is also made regarding the temporal nature of the impairment. Persistent impairment (e.g. contaminated sediments) led to a Class D or SD Classification while intermittent impairment (e.g. Combined Sewer overflows) result in Class C or SC Classification. In order to clarify the distinction between these Classes, the text will be edited to read:

"Class C

Class C water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions frequently preclude the attainment of one or more designated uses for Class B waters or one or more Criteria for Class B waters are not being consistently achieved. Class C waters

may be suitable for certain fish and wildlife habitat, certain recreational activities, industrial use and navigation. Class C waters may have good aesthetic value. Examples of conditions that warrant a Class C designation include: combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class B designated uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7."

"Class D

Class D water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses for Class B waters or one or more Criteria for Class B waters are not being achieved for prolonged periods. Class D waters may be suitable for bathing or other recreational purposes, certain fish and wildlife habitat, industrial uses and navigation. Class D waters may have good aesthetic value. Examples of conditions that warrant a Class D designation include chemical contamination of bottom sediments, contamination of fish or shellfish with toxic compounds, and pollution caused by out-of-state sources. The minimum acceptable goal is Class B unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7."

"Class SC

Class SC water quality results from conditions that are usually correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions frequently preclude the attainment of one or more designated uses for Class SB waters or one or more Criteria for Class SB waters are not being consistently achieved. Class SC waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Class SC waters may have good aesthetic value. Examples of conditions that warrant a Class SC designation include: combined sewer overflows, urban runoff, inadequate municipal or industrial wastewater treatment, and community-wide septic system failures. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more Class SB designated uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7."

"Class SD

Class SD water quality results from conditions that are not readily correctable through implementation of established water quality management programs to control point and non-point sources. Present water quality conditions persistently preclude the attainment of one or more designated uses for Class SB waters or one or more Criteria for Class SB waters are not being achieved for prolonged periods. Class SD waters may be suitable for certain fish and wildlife habitat, certain recreational activities, certain aquaculture operations, industrial use and navigation. Examples of conditions that warrant a Class SD designation include chemical contamination of bottom sediments, contamination of fish or shellfish

with toxic compounds, and pollution caused by out-of-state sources. The minimum acceptable goal is Class SB unless a DEP and EPA approved Use Attainability Analysis demonstrates that one or more uses are not attainable. In those situations, site-specific Quality Criteria will be employed to insure that all existing uses are maintained. Refer to Standard 7."

133. Comment: Replace the term "Sub-Classifications shown on maps" with "Notations", "Attainment Status/Use Goal Notations", or simply "Classifications". (EPA, RBT)

Response: "Sub-classifications shown on maps" will be revised to read "Classifications shown on maps".

134. Comment: A choice should be made to use only one of the following phases "shown on maps", "which appear on maps", "that appear on maps". (RBT)

Response: The phrase "Classifications Shown on Maps" will be used in lieu of other descriptors.

Anti-Degradation Implementation Policy (Appendix E)

Nearly all comments concerning Connecticut's Anti-degradation Policy originated with either the federal Environmental Protection Agency or the U.S. Fish and Wildlife Service, not Connecticut's public. The lack of significant public comment may have resulted from the Department including few proposed changes to the policy in the draft Water Quality Standards provided to the public for review. While a number of comments from these federal agencies raise valid questions and suggestions, Appendix A would have to be modified substantially in order to properly address all comments. This degree of change would essentially occur without the benefit of review by Connecticut's public. Rather than modifying the current Anti-Degradation Implementation Policy at this time without the benefit of comment by Connecticut's public, the Department will limit revisions to simple corrections and improving clarity.

All comments not addressed here will be considered by the Department in developing proposed subsequent changes to the Water Quality Standards. Public review and comment on any substantive changes to the Anti-degradation Policy resulting from consideration of these comments can be submitted and considered at that time.

135. Comment: DEP should include an overall statement that, "*...in all cases existing uses shall be protected and maintained.*" (EPA)

Response: The statement of purpose (Section I) will be edited to read:

".....This policy requires the maintenance and protection of water quality in high quality waters and protection and maintenance of existing uses in all cases."

136. Comment: Even though Connecticut has no designated Outstanding Natural Resource Waters (ONRWs), this section should include language

consistent with the federal anti-degradation policy at 40 CFR 131.12(a)(3) or should reference Connecticut's Standard 5 (recommended if edited in accordance with previous EPA comments). (EPA)

Response: Standard 5, will be referenced in Section III. 1) which will be edited to read:

"Should the Commissioner designate a high quality surface water as an Outstanding National Resource Water at any time after the effective date of these Water Quality Standards, such water will be managed consistent with Standard 5 of these Water Quality Standards."

137. Comment: Connecticut should clarify the relationship between (a), (b), (c), and (d) of section III. It appears that all four subsections must be satisfied since there is an "and" between (c) and (d). However, in section IV it appears that if the change in water quality would not be significant, the evaluation of whether the change is necessary for an important social or economic purpose need not be done. Further, if (a) and (b) must both be satisfied, the implication is that the State only allows insignificant lowering of water quality that is necessary to accommodate "overriding State economic or social development," which is also inconsistent with section IV. On the other hand, if (a) through (d) apply individually, section 3 would not make sense with regard to subsections (c) and (d). For example, given (a) and (b), one would not expect an allowance for a lowering of high quality water simply because existing and designated uses will be protected, i.e., (c), and such an approach would not be acceptable. It seems that the most logical interpretation of section 3 may be that (a) and (b) are to stand alone, and (c) and (d) are to be met in all cases, whether the degradation is significant or insignificant. (EPA)

Response: The interpretation summarized in the last sentence of this comment is consistent with the intent of the Section III provisions and therefore this Section III.3 will be edited to read:

"High quality Class B or SB waters, i.e. those with a quality better than criteria for that Class contained in these Water Quality Standards and which support all designated uses, will be maintained at their existing high quality unless:

(a) the Commissioner finds in accordance with paragraph IV.1 of this Anti-degradation Policy that the resulting change in water quality would not be significant; or

(b) the Commissioner finds, in accordance with paragraph IV.1 of this Anti-degradation Policy and after adequate opportunity for intergovernmental and public participation, that allowing lower water quality is necessary to accommodate overriding State economic or social development; provided

(c) in all cases the Commissioner finds that existing and designated uses will be protected fully, and the discharge is consistent with the hypoxia management actions contained in *"A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound"*, dated December 28, 2000."

138. Comment: In Section IV.2), Determination that allowing lower water quality is necessary: The last sentence of the introductory paragraph is awkwardly worded. Suggest changing "determine" to "ensure."

Response: The recommended change ("determine" to "ensure") will be made.

139. Comment: In Section IV.2), Determination that lowering water quality is necessary, designated uses should also be added to the last sentence, i.e., "... existing and designated uses will be protected fully." (EPA)

Response: The recommended change (add 'designated uses" to the last sentence" will be made so that the last sentence of Section IV.2) reads:

"The Commissioner shall ensure that notwithstanding a lowering of water quality existing and designated uses will be protected fully."

140. Comment: In Section IV.2)(b)(iii) through (vii): The word "mitigate" should be replaced by "minimize," unless DEP intends to include steps like compensatory mitigation, in which case this approach needs to be discussed further. (EPA)

Response: The recommended change (change "mitigate" to "minimize") will be made.

141. Comment: In Section IV.2)(b): In addition to the alternatives already listed, DEP should include "alternative methods of treatment and advanced treatment beyond applicable technology requirements of the Clean Water Act." (EPA)

Response: The recommended change will be made.

142. Comment: In Section IV.3: It is important that Connecticut has a provision consistent with the federal high quality water provision at 40 CFR 131.12(a)(2) that states: "Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and cost effective and reasonable best management practices for non-point source control." Reference to Standard 4 will satisfy this requirement, if our suggested revision to Standard 4 is made. (EPA)

Response: Section IV.3 will be revised to read:

"The Commissioner shall insure that the highest statutory and regulatory requirements be achieved for all new and existing point source discharges and cost-effective and reasonable best management practices for non-point source control be implemented consistent with Standard 4 of these Water Quality Standards."

143. Comment: The Department is proposing to adopt expanded anti-degradation provisions that will apply to any increase in wastewater discharge beyond that already permitted. In addition, the rule will adopt the LIS CCMP as the basis for approving various permit actions. These modifications should not be adopted until DEP can clearly describe to the public how these changes will impact existing authorized growth and future expansion plans. This must include

an economic impacts analysis as well as some plain examples of how this new language is expected to be applied. Absent such information, there is no reasonable way to understand the potential effect of the proposed change in anti-degradation provisions. (CWPAA)

Response: Growth and expansion plans need to be managed in a manner necessary to maintain water quality conditions. This has not changed with the Department's proposed modifications. The Department will however, change all references to the Comprehensive Conservation and Management Plan for Long Island Sound to the *"A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound"*, dated December 28, 2000.

The following comments will be considered when the Department develops recommendations for the next scheduled review of the Water Quality Standards:

Comment: As DEP has already done in its implementation procedures for zones of influence, DEP should explicitly recognize the protection of endangered and threatened species in the anti-degradation provisions. (EPA)

Comment: Reference to water withdrawals and diversions should be added to the Applicability section unless they are covered by the references to chapters 440 or 446i-k.

Comment: Clarify what is being omitted by deleting the reference to chapter 368. (EPA)

Comment: In Class AA, SA, or A waters, section 2), it appears that the anti-degradation evaluation procedures (in section IV) do not apply to the listed permissible discharges and activities in Class AA, A, and SA waters. While the scope of projects that can be authorized in these waters is limited, the Tier 2 (high quality water protection) evaluation should still apply. The definition of "clean water" includes storm water and minor cooling water. These types of discharges, as well as treated backwash, and a variety of non-point source discharges may substantially degrade the receiving waters. There should at least be an evaluation of whether the degradation would be significant, and if so, a full Tier 2 evaluation would be necessary. Further, even if the degradation is temporary, i.e., section 2(a), existing and designated uses must be protected at a minimum. (EPA)

Comment: In Section III. 3), High quality Class B or SB waters, the provisions for high quality water protection should not be limited to Class B or SB, unless the waters of other classifications are afforded protection better than the federal intent at 40 CFR 131.12(a)(2). (EPA)

Comment: DEP should not require that a water meet <u>all</u> designated uses in order to be a high quality water. Any water with a quality better than necessary to satisfy an applicable criterion should be high quality for that criterion. (EPA)

Comment: At section III.3)(a), and in other sections in the anti-degradation implementation procedures, reference is made to accommodating "State" economic or social development. The federal language at 40 CFR 131.12(a)(2) refers to important economic or social development "...in the area in which the water are located." We would like to discuss DEP's implementation of this provision to ensure that it is consistent with the federal intent. (EPA)

Comment: In Section IV, Anti-degradation Evaluation Procedures the procedures should not be limited to Class B and SB waters, unless degradation is prohibited in other waters or given the ONRW level of protection (i.e. only short term and temporary degradation is allowed and water quality necessary to protect existing and designated uses is maintained). However, there should be a careful process to differentiate between necessary and unnecessary short term and temporary degradation in ONRWs. (EPA)

Comment: In Section IV: Determination of significant lowering of water quality: The federal anti-degradation regulation does not contain an impact threshold below which degradation can occur without a full review to ensure that a lowering of water quality is necessary to accommodate important economic or social development. However, in the Great Lakes Guidance documentation EPA expressed a willingness to accept a narrow de minimis provision that would allow discharges having a negligible effect on the receiving water to avoid a full anti-degradation analysis (with the exception of bioaccumulative pollutants of concern). In keeping with past practice in Region 1 of allowing states to differentiate between insignificant and significant lowering of high quality water, thus focusing limited resources on the more critical anti-degradation issues, EPA Region 1 has recently approved state standards that generally differentiate between insignificant and significant degradation. Important to those approvals has been accompanying provisions allowing case-by-case determinations that any lowering of water quality is significant and subject to a full review, and provisions providing an opportunity for public comment on preliminary decisions that a lowering of water quality is insignificant. As regional and national policy on the de minimus issue develops, it may become necessary to reconsider this position.

EPA Region I is willing to accept a significance threshold below which the full anti-degradation evaluation need not be done. However, we would like to discuss Connecticut's significance test with regard to its subjectivity and the benchmarks used to determine if degradation is or is not significant. (EPA)

Comment: The evaluation of cumulative impacts in IV.1)(c) should not be limited to regulated discharges and activities. Unregulated activities may have a substantial effect on water quality that is relevant to whether there is room for the proposed discharge or activity and relevant to the determination of the additional effect the proposed discharge or activity would have. For similar reasons, the term "regulated" should also be deleted from subsection (g). (EPA)

Comment: Section IV.1)(d) should be revised to include wildlife and wildlife habitat, i.e., "...aquatic biota, other wildlife, and their habitat;" (EPA)

Comment: In addition to the factors already listed, the following additional factors should be included at section IV.1 in the determination of whether or not a proposed lowering of water quality is significant:

- the duration, and spatial extent of the proposed change in water quality;
- the magnitude of the mass load independent of the total assimilative capacity or change in receiving water pollutant concentration.
- the possible additive or synergistic effects of the activity in combination with other existing activities.
- the toxic or bioaccumulative characteristics of the pollutant(s) in question.
- the potential to stress sensitive biological resources such as indigenous species, rare species, and threatened or endangered species and their habitat.

- the potential to stress sensitive recreational uses or water supply uses. (EPA)

Comment: In Section IV.2), Determination that lowering water quality is necessary, high quality waters should not be limited to Classes B and SB (please see earlier comments on this issue). (EPA)

Comment: In Section IV.2)(a): The two primary demonstrations involved in a determination that a proposed lowering of water quality is necessary to accommodate important economic or social development are: 1) that the proposed activity will provide important economic or social development, and 2) that a lowering of water quality is necessary to accommodate the development. The first involves documentation of the economic or social development benefits that would be realized if the activity that would ultimately result in water quality degradation were authorized. Where it is determined that important economic or social development would be realized from the proposed activity, the second involves an evaluation of alternatives to determine if that important development can be realized either without lowering water quality, or with a reduced degree of degradation. We suggest replacing the two factors currently at Section IV.2)(a)(i) and (ii) with the two factors discussed above. The two factors currently at Section IV.2)(a)(i) and (ii) relate to whether potential alternatives that could eliminate or reduce degradation are technically and economically feasible; and therefore, could be included in the introduction to Section IV.2)(b) as factors the State would consider in determining if potential alternatives are feasible in a given case. (EPA)

Comment: In Section IV.2)(b): The last paragraph of Section IV.2)(b) is confusing. The first part concerns the need for an applicant to demonstrate the economic or social benefits that would result from the proposed activity, while the second part appears to be related to the issue of existing use protection. The following is suggested:

- Remove everything after the first sentence and label this paragraph Section IV.2)(c).
- Add to the new Section IV.2)(c) any additional information the State has on how it will determine that a proposed activity will result in important economic or social benefits to the State. This could include reference to guidance, such as EPA's 'Interim Economic Guidance for Water Quality Standards,' EPA-823-B-95-002, March 1995.
- Establish a new section earlier in the procedure that addresses existing use protection and identification of existing uses. The information recommended for removal from the paragraph could be used as appropriate in addition to the following items for determining the presence of existing uses and ensuring their protection.
- Freshwater, estuarine, and marine aquatic life present in the affected waters.
- Other wildlife that use or are dependent on the affected waters.
- Presence of water quality and physical habitat that support, or would support, aquatic life or other wildlife.
- Presence of indigenous species and communities.
- Evidence that demonstrates importance in the functioning of the ecosystem, such as spawning and nursery habitat and significant wetlands; or rarity, such as federally or state listed threatened or endangered species.
- Use of the waters for recreation in or on the water, such as fishing, swimming, and boating, or use of the waters for commercial activity.
- Evidence that demonstrates important historical or social significance.
- Whether or not current instream conditions or uses of the waters conflict with achieving and maintaining "goal uses" of the CWA at Section 101(a)(2) and

the primary CWA objective to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Use of waters to receive, transport, or assimilate sewage, waste, or pollutants shall not be considered an existing use. (EPA)

Comment: In Section IV.5, Public Participation: The public participation section should be revised to specifically provide for public notice of tentative decisions to allow any lowering of water quality, whether it be significant or insignificant degradation. (EPA)

Comment: In Section IV.5, Public Participation: The implementation procedure should be revised to include public notice details, such as:

- a description of the proposed activity;
- a description of the surface waters involved and their use classification:
- a statement of the State's anti-degradation policy; a determination that existing uses and necessary water quality will be maintained and protected;
- a summary of the expected impacts on high quality water; a determination that where a lowering of water quality is allowed;
- all applicable water quality criteria will be met (designated uses protected) and any higher water quality achievable by the most stringent applicable technology requirements will be maintained; a discussion of any other information that is relevant to how the activity complies or does not comply with this policy; and
- when the decision involves a proposed significant lowering of water quality: a summary of the important economic or social benefits, a summary of the alternatives analysis, and a finding that the lowering of water quality is necessary. (EPA)

Comment: In Section IV., Intergovernmental Coordination: Intergovernmental coordination and review should be specifically included, either in the public participation section or a new section. The implementation procedure should include a statement that intergovernmental coordination and review will be satisfied by submitting a copy of the public notice to the following agencies and requesting comments: the appropriate state offices and agencies; the US EPA New England; US Army Corps of Engineers; US Fish and Wildlife Service; National Marine Fisheries Service; National Park Service; and Natural Resources Conservation Service. (EPA)

Comment: In the High Quality Surface Waters, Class A, AA and SA waters, suggest modifying the first sentence to read as: "The commissioner shall not issue any certificate, permit or other approval for any discharge, dredging activity, discharge of dredged or fill material, or other activity unless he or she determines in accordance with section IV. 1) that such discharge or activity would not cause a detectable or measurable lowering of any water quality parameter of these waters." Among other things, these proposed modifications would expand the reach of this section by eliminating the restriction to regulated discharges or activities, and by eliminating the restriction to that category of discharges or activities that cause significant changes. (FWS)

Comment: Subsections (a), (b), and (c) should be deleted because it is unlikely that these activities could routinely pass the detectable or measurable change standard. (FWS)

Comment: Subsection (d) could be retained and renumbered provided the second sentence (the proposed addition) is deleted in its entirety or the word "significant" on line 6 is changed to "detectable or measurable". (FWS)

Comment: In the Class B and SB section, the first sentence in this section is written in such a fashion that it limits the number of waterbodies that could be regarded as being high quality waters on a parameter by parameter basis. The first limitation is the requirement for a criterion listed in the standards to be exceeded. The second limitation is the requirement that all designated use goals to be met. Together, these requirements effectively limit the number of waters that could be considered as high quality. I suggest that these restrictions be removed so that a more robust application of Tier II anti-degradation is possible. (FWS)

Comment: Subsection (b) should be modified by deleting the word "significant" and replacing it with the words "detectable or measurable". (FWS)

Comment: In part IV, 1.) Determination of significant lowering of water quality. As presently constructed, the review process requires a determination of whether the activity will result in a significant change in water quality and lists a number of factors to consider in making the significance determination. This process appears to be inconsistent with the ruling in Arkansas v. Oklahoma, 503 U.S. _,_, (1992) wherein the U. S. Supreme Court held that a reasonable threshold for anti-degradation review was whether a detectable or measurable change in water quality would occur. This detectable or measurable change standard has been adopted in other case law involving anti-degradation such as Columbus & Franklin Cty. v. Shank, 600 N. E. 2d 1042 (Ohio, 1992) where it was referred to as the no perceptible change standard. Consequently, the heading should be renamed as follows: Determination of detectable or measurable change in water quality. On line 3 delete the word "significant" and replace it with the words "detectable or measurable". (FWS)

Comment: In subsections (a), (c) and (g) the word "regulated" should be deleted since this is an unreasonable limitation on the reach of anti-degradation. (FWS)

Comment: 1) Determination that allowing lower water quality is necessary - suggest changing the first sentence as follows: If the Commissioner determines that a proposed discharge or activity will result in a detectable or measurable lowering of a water quality parameter in a high quality water, he or she shall not issue a permit, certificate or other approval unless he or she finds that lowering water quality is necessary to accommodate overriding statewide economic and social development which he or she has determined is clearly in the public interest.

(a) This subsection establishes criteria based on technology and costs from which the decision to allow lower water quality will be made. These criteria are different from those articulated by the Ohio Court in Columbus and Franklin Cty. v. Shank. There, the Court found that it was necessary to consider whether a) the discharge or activity was feasible if no degradation was allowed; b) whether the activity or development was feasible with zero discharge; and c) whether the proper area for siting the discharge or activity was evaluated. The Court indicated that the discussions and evaluations of technology were proper only after the public hearing and decision to allow lower water quality had been made. In addition, the implementation policy does not follow many of the steps outlined in the June 17, 1998 draft implementation procedure developed by EPA, Region I.

(b) This subsection lists a number of factors that must be considered when conducting an alternatives analysis under this section. Items (iii) - (vii) include consideration of mitigation measures to presumably offset some effects of the

proposed discharge or activity. Is mitigation a legitimate process/function to consider under an anti-degradation review? The June 17, 1998 Region I guidance and the case law referenced in these comments do not mention mitigation as a permissible option under an anti-degradation review. Therefore, I suggest that the word mitigate be deleted. I believe the word minimize would be more appropriate since it would be consistent with the requirement to demonstrate best available demonstrated control technology in this stage of the anti-degradation review process. (EPA)

Other Comments

Comment: The National Marine Fisheries Service also expressed concerns regarding water quality in the Connecticut River as it may relate to the health and reproduction abilities of the shortnose sturgeon. The letter concludes with a request for water quality information.

Response: Although this comment is not relevant to these Water Quality Standards, water quality information for the Connecticut River can be accessed through EPA's STORET system, the USGS WATSTORE system, or by reviewing monitoring data records in the Connecticut Department of Environmental Protection, Bureau of Water Management (phone # 860-424-3020).

Proposed Revisions: The Department's proposed Water Quality Standards, as amended in the above comment responses, shall be forwarded to the Environmental Protection Agency New England for review and approval as required by the Federal Clean Water Act.

Arthur J. Rocque, Jr., Commissioner

11/7/01
Date